

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA**

PACIFIC COAST FEDERATION OF
FISHERMEN'S ASSOCIATIONS, *et al.*,

Plaintiff,

v.

GINA RAIMONDO, *et al.*,

Defendants.

No. 1:20-cv-00431-JLT-EPG

ORDER GRANTING REQUEST TO
EXTEND INTERIM OPERATIONS PLAN;
GRANTING IN PART AND DENYING AS
MOOT IN PART REQUESTS FOR
JUDICIAL NOTICE; GRANTING MOTION
TO STRIKE SRS CONTRACTORS'
REQUEST FOR ALTERNATIVE RELIEF;
DENYING ALL OTHER ALTERNATIVE
REQUESTS FOR RELIEF; AND STAYING
CASE THROUGH DECEMBER 31, 2023

(Docs. 406, 416, 416, 415, 418, 444, 450)

THE CALIFORNIA NATURAL
RESOURCES AGENCY, *et al.*,

Plaintiffs,

v.

GINA RAIMONDO, *et al.*,

Defendants.

No. 1:20-cv-00426-JLT-EPG

ORDER GRANTING REQUEST TO
EXTEND INTERIM OPERATIONS PLAN;
GRANTING IN PART AND DENYING AS
MOOT IN PART REQUESTS FOR
JUDICIAL NOTICE; GRANTING MOTION
TO STRIKE SRS CONTRACTORS'
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REQUESTS FOR RELIEF; AND STAYING
CASE THROUGH DECEMBER 31, 2023

(Docs. 286, 294, 295 310)

I. INTRODUCTION

These related cases involve challenges to a pair of “biological opinions” (“BiOps”) issued by the National Marine Fisheries Service (“NMFS”) and the U.S. Fish and Wildlife Service (“FWS”) in 2019 pursuant to the Endangered Species Act (“ESA”), 16 U.S.C. § 1531 *et seq.* The 2019 BiOps address the impact on various ESA-listed species of implementing an updated plan issued by the U.S. Bureau of Reclamation (“Reclamation”) and California’s Department of Water Resources (“DWR”) for the long-term operation of the Central Valley Project (“CVP”) and the State Water Project (“SWP”) (collectively, “Water Projects” or “Proposed Action”). FWS’s 2019 BiOp addresses Water Project impacts on the ESA-listed delta smelt; NMFS’s 2019 BiOp addresses impacts on various other aquatic species, including several salmonid species discussed in this order.

Plaintiffs¹ in both cases allege that NMFS and FWS violated the Administrative Procedure Act (“APA”), 5 U.S.C. § 706, in various ways by concluding that the Water Projects would not jeopardize the continued existence of the ESA-listed species addressed in each biological opinion. (*PCFFA* Doc. 52; *CNRA* Doc. 51.)² Both sets of Plaintiffs also bring claims against Reclamation under the ESA and the National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4321 *et seq.*, challenging Reclamation’s adoption and implementation of the Proposed Action (*Id.*)³ The State Plaintiffs’ complaint in *CNRA* also alleges that Reclamation has violated the APA by failing to comply with the California Endangered Species Act (“CESA”), conformance with which State Plaintiffs maintain is required by various provisions of federal law. (*CNRA* Doc. 51 (“*CNRA* FAC”), ¶¶ 145–54.)

¹ Plaintiffs in *Pacific Coast Federation of Fishermen’s Associations v. Ross*, 1:20-cv-00431-DAD-EPG (“*PCFFA*”), are a coalition of six environmental organizations (collectively referenced herein as “*PCFFA*”). Plaintiffs in *California Natural Resources Agency v. Ross*, No. 1:20-cv-00426-DAD-EPG (“*CNRA*”), are the People of the State of California, California’s Natural Resources Agency, and California’s Environmental Protection Agency (“State Plaintiffs”).

² Hereinafter, the Court will omit the “*PCFFA*” designation from record documents in that case but will continue to distinguish documents of record in the *CNRA* case by retaining the “*CNRA*” designation when citing documents from *CNRA*.

³ Collectively, NMFS, FWS, and Reclamation, along with the individual named heads of those agencies, are referenced as “Federal Defendants.”

1 In late 2021 and early 2022, when this case was assigned to U.S. District Judge Dale A.
 2 Drozd, the parties briefed a highly complex set of motions, including motions for voluntary
 3 remand without vacatur, a request made by Federal Defendants and State Plaintiffs to impose a
 4 stipulated package of interim injunctive relief measures in the *CNRA* case that would govern
 5 operations for the remainder of the 2022 “Water Year” (“WY”)⁴, and what was effectively a
 6 cross-motion filed by PCFFA to impose a competing package of interim injunctive measures. In a
 7 122-page, detailed order issued on March 11, 2022, Judge Drozd granted the motion for voluntary
 8 remand without vacatur of the challenged BiOps, approved the stipulated interim injunctive relief
 9 package (the “2022 Interim Operation Plan” or “2022 IOP”), denied PCFFA’s competing
 10 injunctive relief requests, and stayed the case through September 30, 2022. (Doc. 394 (“IOP
 11 Order”).)

12 The parties filed status reports toward the end of WY 2022. (Docs. 404–406.)
 13 Recognizing that the remand (and associated revisions to the BiOps and related documents) is not
 14 anticipated to be complete until early 2024 (*see* Doc. 406 at 3), Federal Defendants and State
 15 Plaintiffs now propose extending the IOP (the “IOP Extension” or “2023 IOP”), with some
 16 modifications, through December 31, 2023. (*See generally* Doc. 406.) The Court set a briefing
 17 schedule that permitted objections to the proposed IOP Extension, alternative requests for interim
 18 relief, and responses thereto. Although the Court endeavored to control the breadth of the briefing
 19 to ensure that a ruling could be timely issued, the pending motions and associated declarations
 20 and documentation are nonetheless voluminous. In addition, after the briefing closed, the Court
 21 requested updates regarding the anticipated classification of WY 2023. Finally, on February 13,
 22 2023, the State Plaintiffs filed a notice informing the Court of further regulatory action relevant to
 23 the Court’s decision making. (*CNRA* Doc. 320.) On February 14, 2023, PCFFA filed a response
 24 to that notice offering its positions on the implications of that notice for the pending motions
 25 (Doc. 458), and one defendant intervenor filed a reply to PCFFA’s response (Doc. 461). The
 26 Court has read and considered all the filings in light of the entire record. (Docs 404–406, 410–

27 ⁴ A “Water Year” runs from October 1 of the preceding calendar year through September 30 of the current calendar
 28 year. (*See* 11/23/21 Grober Decl., *CNRA* Doc. 223, ¶ 26.)

426, 428–45, 447–448, 450–52, 456–58, 461; CNRA Docs. 299, 300, 307–311, 320.)

It would be impossible for any court to address all of the material presented to it here in a timely manner. Out of necessity, this order therefore addresses only the material and issues the Court finds necessary to the resolution of the pending requests. The Court is aware that its presentation of the issues is rough and clumsy in comparison to the nuanced presented in some of the briefs and declarations before the Court. Though these motions have been briefed over the course of many months, their complexity in relation to the need for swift decision has left the Court with little choice.

II. BACKGROUND⁵

The Court provides here only that background information which is most essential to explaining and understanding its reasoning herein. The IOP Order provides additional, sometimes more detailed background. (*See* IOP Order at 3–14, 28–34.).

A. The Endangered Species Act (ESA)⁶

“Under the ESA, the Secretary of the Interior and the Secretary of Commerce are charged with identifying threatened and endangered species and designating critical habitats for those species.” *Nat. Res. Def. Council v. Jewell*, 749 F.3d 776, 779 (9th Cir. 2014) (“*NRDC v. Jewell*”) (citing 16 U.S.C. § 1533). FWS and NMFS administer the ESA on behalf of the Departments of the Interior and Commerce, respectively. *See* 50 C.F.R. §§ 17.11, 222.101(a), 223.102, 402.01(b). Most pertinent to these cases is Section 7 of the ESA. 16 U.S.C. § 1536 (“Section 7”). Section 7(a)(2) imposes a procedural duty on the federal agencies to consult with the FWS or NMFS, depending on the protected species,⁷ to “insure that any action authorized, funded, or carried out

⁵ For simplicity and to ensure clarity of the record, the Court refers to declarations by their date, followed by the declarant’s last name. The first time any declaration is referenced, the Court has endeavored to provide the Docket Number.

⁶ Though other statutes are implicated in these cases, the ESA forms the core of the parties’ arguments and therefore is the focus of the court’s attention. Relevant aspects of other statutes are discussed as necessary.

⁷ Generally, FWS has jurisdiction over species of fish that either (1) spend the major portion of their life in fresh water, or (2) spend part of their lives in estuarine waters, if the remaining time is spent in fresh water. *See Cal. State Grange v. Nat’l Marine Fisheries Serv.*, 620 F. Supp. 2d 1111, 1120 n. 1 (E.D. Cal. 2008), *as corrected* (Oct. 31, 2008). NMFS is granted jurisdiction over fish species that (1) spend the major portion of their life in ocean water, or (2) spend part of their lives in estuarine waters, if the remaining portion is spent in ocean water. *Id.* Relevant to the cases before the court, FWS exercises jurisdiction over the delta smelt; NMFS exercises jurisdiction over the winter-

by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification” of critical habitats of listed species. 16 U.S.C. § 1536(a)(2). An agency “action” is defined to mean all activities carried out by federal agencies, including, among other things, the granting of licenses and permits. *See* 50 C.F.R. § 402.02. “If a contemplated agency action may affect a listed species, then the agency must consult with the Secretary of the Interior, either formally or informally.” *Am. Rivers v. NMFS*, 126 F.3d 1118, 1122 (9th Cir. 1997).

Formal consultation results in the issuance of a BiOp by the relevant wildlife agency (FWS or NMFS). *See* 16 U.S.C. § 1536(b). If the BiOp concludes that the proposed action would jeopardize the species or destroy or adversely modify critical habitat, *see id.* § 1536(a)(2), then the action may not go forward unless the wildlife agency can suggest a “reasonable and prudent alternative[]” (“RPA”) that avoids jeopardy, destruction, or adverse modification. *Id.* § 1536(b)(3)(A). If a BiOp concludes that the proposed action (or the action implemented in conjunction with actions described in the RPA) will cause incidental taking of protected species, but that despite this taking, the action will not jeopardize the species or threaten critical habitat, the wildlife agency

shall provide the Federal agency and the applicant concerned, if any with a written statement that—

- (i) specifies the impact of such incidental taking on the species,
- (ii) specifies those reasonable and prudent measures that the Secretary considers necessary or appropriate to minimize such impact,
- (iii) . . . , and
- (iv) sets forth the terms and conditions (including, but not limited to, reporting requirements) that must be complied with by the Federal agency or applicant (if any), or both, to implement the measures specified under clauses (ii) and (iii).

Id. § 1536(b)(4). This required written statement, with its “reasonable and prudent measures” (“RPMs”) and associated terms and conditions, is referred to as an “Incidental Take Statement” (“ITS”), which, if followed, exempts the action agency from the prohibition on takings found in

run and spring-run and the CV steelhead.

Section 9 of the ESA. *Id.* § 1536(o); *Aluminum Co. of Am. v. Adm’r, Bonneville Power Admin.*, 175 F.3d 1156, 1159 (9th Cir. 1999).

B. Listed Species at Issue

The Delta smelt (*Hypomesus transpacificus*) is a “small, two-to-three inch species of fish endemic to the San Francisco Bay/Sacramento–San Joaquin Delta Estuary [(“Delta”).” *San Luis & Delta-Mendota Water Auth. v. Jewell*, 747 F.3d 581, 595 (9th Cir. 2014) (“*San Luis v. Jewell*”). In 1993, FWS concluded the Delta smelt’s population had declined by ninety percent over the previous twenty years and listed it as a “threatened” species under the ESA. Determination of Threatened Status for the Delta Smelt, 58 Fed. Reg. 12,854, 12,855–56 (Mar. 5, 1993).

The winter-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*), and California Central Valley (“CV”) steelhead (*Oncorhynchus mykiss*), are “anadromous” fish, meaning that they live most of their lives in salt water, but “are born, mature, lay eggs, and often die in inland freshwater lakes and rivers.” *San Luis & Delta-Mendota Water Auth. v. Locke*, 776 F.3d 971, 986–87 (9th Cir. 2014) (“*San Luis v. Locke*”).

After they grow from fry (baby fish) to smolts (juvenile fish) in fresh water, anadromous salmon outmigrate through rivers and deltas into the oceans and seas where they will spend most of their adult lives. When it is time to reproduce, these salmon migrate back through the deltas to the rivers and lakes in which they were born to lay eggs. During this migration, salmon must pass impediments in inland rivers such as locks, dams, channels, and pumps.

Id. at 987. Of the anadromous species listed above, the winter-run Chinook salmon (“winter-run”) are most relevant to the pending motions. The winter-run is listed as endangered under the ESA. (Doc. 85-2 (“2019 NMFS BiOp”) at p. 65⁸.)

Before construction of Shasta Dam, the winter-run had access to the Sacramento River upstream of Shasta Dam’s present location and to the upper tributaries where springs provided cold water throughout the summer. (*Id.* at pp. 69–70.) Shasta Dam and Keswick Dam (a smaller, regulating dam that sits nine miles downstream of Shasta) now block access to this extensive

⁸ Where the Court references a record document’s internal pagination, it refers to the page as “p. __.” Otherwise, page references are to the .pdf page reference provided by the Court’s CM/ECF system.

former spawning habitat of the winter-run. (*Id.* at p. 70.) As a result, the only wild population of winter-run spawns exclusively in the reaches of the Upper Sacramento River below Keswick Dam and this “single population . . . has been supported by cold water management operations at Shasta Dam.” (*Id.*) Generally, winter-run adults migrate upstream through the San Francisco Bay-Delta region during the winter and spring months and spawn in the upper Sacramento River in the summer months. (*Id.* at pp. 70–71.) The ocean stage of the winter-run life cycle typically lasts three years. (*PCFFA*, Doc. 85-18 (“2009 NMFS BiOp”) at p. 87.)⁹

C. Overview of the Water Projects and Impacts on Listed Species

The CVP and the SWP, “operated respectively by [Reclamation] and the State of California, are perhaps the two largest and most important water projects in the United States.” *San Luis v. Jewell*, 747 F.3d at 592. “These combined projects supply water originating in northern California to more than 20,000,000 agricultural and domestic consumers in central and southern California.” *Id.* As one part of CVP operations, Reclamation releases water stored in CVP reservoirs in northern California; this water then flows down the Sacramento River to the Delta. *See id.* at 594. Pumping plants in the southern region of the Delta (South Delta) then divert the water to various users south of the Delta. *See id.* at 594–95.

“Although the [Water] Projects provide substantial benefits to people and to state agriculture, they arguably harm species native to the Delta by modifying those species’ natural habitats.” *San Luis v. Locke*, 776 F.3d at 986. The Water Projects do so in several ways. First, as mentioned, the dams that make the CVP and SWP possible have blocked access to the colder water upstream spawning and rearing habitat of migratory fish species. *Nat. Res. Def. Council v. Norton*, 236 F. Supp. 3d 1198, 1204 (E.D. Cal. 2017) (“*NRDC v. Norton*”). This has limited (and in some cases all but eliminated) spawning and rearing habitat for these species and confined certain populations to spawning areas where flows and temperatures are largely controlled by releases from upstream dams. *See id.*

In addition, the Water Projects pump fresh water out of the “Old and Middle River”

⁹ Spring-run Chinook salmon and CV steelhead—species discussed at some length in the IOP Order—are not focal points of the briefing related to the 2023 IOP. Likewise, the Longfin smelt (*Spirinchus thaleichthys*), which is listed under CESA but not the ESA, (4/21/20 Herbold Decl., *CNRA* Doc. 55, ¶ 19), is not a focus of the present briefing.

1 (“OMR”) branches of the San Joaquin River in volumes sufficient to reverse the flow in OMR.
 2 *Id.* at 996. “Absent pumping, [these] rivers would flow north into the Delta.¹⁰ Under pumping
 3 operations, the rivers flow south to the [CVP’s] Jones and [SWP’s] Banks pumping plants.” *San*
 4 *Luis v. Locke*, 776 F.3d at 986. Listed species—particularly juveniles—can be caught in the
 5 negative current and drawn towards the pumping facilities. *Id.* Some of these fish are “salvaged”
 6 at the pumps, “meaning they are diverted from the fatal pumping plants to fish salvage facilities
 7 and into tanks where they are counted, measured, loaded into trucks, driven north, and dumped
 8 back into the Delta.” *Id.* But even if salvaged, fish that are drawn towards the pumps by the
 9 “negative OMR” flow have a lower likelihood of surviving outmigration than their counterpoints
 10 that avoid “entrainment”¹¹ by Water Project operations. *Id.* “The collection of fish of concern at
 11 the export facilities is a clear indicator that fish have been diverted from their migratory paths into
 12 the channels of the south Delta.” (11/23/21 Herbold Decl., ¶ 39.) For example, when the Delta
 13 smelt was listed as endangered, “Delta water diversions,” including those resulting from
 14 operations of the CVP and SWP, were deemed a significant “synergistic cause[]” of the decline
 15 in the population. 58 Fed. Reg. at 12,859.

16 **D. 2008/2009 Biological Opinions**

17 The Water Projects have undergone numerous rounds of review under the ESA, resulting
 18 in BiOps issued by FWS and NMFS that have imposed various forms of regulatory constraints
 19 upon Water Project operations. These BiOps have also been the subject of essentially endless
 20 litigation.

21 ¹⁰ The hydrodynamics of the Delta highly complex and are influenced by, among other things, inflow from the
 22 various watersheds that drain into the Delta, Water Project actions, and tidal influences. (*See* 2019 NMFS BiOp at p.
 23 148 (“There are two primary categories of effects in the south Delta due to water export: (1) salvage and entrainment
 24 at the south Delta export facilities, and (2) water-project-related changes to south Delta hydrodynamics that may
 25 reduce the suitability of the south Delta for supporting successful rearing or migration of salmonids and sturgeon
 26 from increased predation probability and exposure to poor water quality conditions. Key water-project-related drivers
 of south Delta hydrodynamics are Vernalis inflow, CVP and SWP exports from the south Delta export facilities and
 construction of agricultural barriers; these drivers interact with tidal influences over much of the central and southern
 Delta. In day-to-day operations, these drivers are often correlated with one another (for example, exports tend to be
 higher at higher San Joaquin River inflows) and regulatory constraints on multiple drivers may simultaneously be in
 effect.”).)

27 ¹¹ According to State Plaintiff’s expert witness, Dr. Bruce Herbold: “Entrainment consists of two parts; the capture of
 28 fish at the export facilities’ fish screens and the much larger, but uncounted, loss of fish diverted off their migratory
 paths and into channels of the south Delta where predation is high.” (11/23/21 Herbold Decl., CNRA Doc. 224, ¶ 39.)

1 A 2008 FWS BiOp concluded that “CVP/SWP operations have entrained smelt, including
 2 adults, larvae, and juveniles, at the Banks and Jones facilities; reduced smelt habitat; and reduced
 3 [] Delta outflows, altering the location of the [Low Salinity Zone]¹².” *Id.* at 598. The 2008 FWS
 4 BiOp recommended a suite of actions (a reasonable and prudent alternative, or “RPA” in the
 5 parlance of the ESA) designed to protect against the harm the water projects would otherwise
 6 cause to delta smelt. (*See* Doc. 85-17 (“2008 FWS BiOp”) at pp. 279–85.) That RPA included
 7 measures to limit how “negative” OMR flows could become and other actions designed to
 8 provide sufficient Delta outflow to maintain Delta smelt habitat conditions. (*See id.* at pp. 281–
 9 283.)

10 Similarly, an NMFS 2009 BiOp concluded that “the long-term operations of the CVP and
 11 SWP are likely to jeopardize the continued existence” of and “destroy or adversely modify”
 12 critical habitat for winter-run, spring-run, and CV steelhead. (*See* 2009 NMFS BiOp at p. 575.)
 13 That BiOp also included an RPA designed to allow the projects to continue operating without
 14 causing jeopardy to the species or adverse modification to its critical habitat. (*Id.* at pp. 575–671.)
 15 The 2009 NMFS BiOp provided a succinct overview of that 2009 NMFS RPA, pertinent parts of
 16 which provide helpful background here:

17 Water operations result in elevated water temperatures that have
 18 lethal and sub-lethal effects on egg incubation and juvenile rearing
 19 in the upper Sacramento River. The immediate operational cause is
 20 lack of sufficient cold water in storage to allow for cold demands.
 21 This elevated temperature effect is particularly pronounced in the
 22 Upper Sacramento for winter-run and mainstem spring-run, and in
 23 the American River for steelhead. The RPA includes a new year-
 24 round storage and temperature management program for Shasta
 25 Reservoir and the Upper Sacramento River

26 ***

27 [W]ater pumping causes reverse flows, leading to loss of juveniles
 28 migrating out from the Sacramento River system in the interior
 Delta and more juveniles being exposed to the State and Federal
 pumps, where they are salvaged at the facilities. The RPA
 prescribes Old and Middle River flow levels to reduce the number

¹² “Two related standards are used to describe the salinity of the Bay–Delta. The first is the Low Salinity Zone or LSZ. The LSZ is the transition point between the freshwater of the inland rivers and brackish water flowing eastward from San Francisco Bay and the Pacific Ocean and includes water ranging in salinity from 0.5 parts per thousand to six parts per thousand. The second is referred to as X2. X2 represents the point in the Bay–Delta at which the salinity is less than two parts per thousand.” *San Luis v. Jewell*, 747 F.3d at 595 (internal record citations omitted).

of juveniles exposed to the export facilities and prescribes additional measures at the facilities themselves to increase survival of fish.

(*Id.* at pp. 576–77.)¹³

E. Temperature Management at Shasta Dam under the 2009 NMFS BiOp

Generally, temperature management below Shasta/Keswick Dams involves the release of cold water¹⁴ to meet target temperatures at various temperature compliance points (“TCPs”) along the Sacramento River. Keswick Dam is located at River Mile 302. (Biological Assessment (“BA”), Doc. 85-12, at p. 2-13.) The farthest upstream TCP identified in the 2009 NMFS BiOp is Clear Creek (about 10 river miles below Keswick), then Airport Road Bridge (15 river miles below Keswick), Balls Ferry (25 river miles below Keswick), and Bend Bridge (44 river miles below Keswick). (*Id.*) The general purpose of these TCPs is to keep water temperatures cool enough to avoid damaging salmon eggs, a phenomenon known as “temperature-dependent mortality” (“TDM”). (*See* BA 4-29; 3/5/20 Rosenfield Decl., ¶ 138.)

NMFS’s 2009 BiOp required Reclamation to develop a temperature management plan (“TMP”) by May 15 of each year and to implement Shasta Dam operations so as to achieve daily average water temperatures not to exceed 56°F between Balls Ferry and Bend Bridge from May 15 through September 30 for the protection of winter-run, and not in excess of 56°F between Balls Ferry and Bend Bridge from October 1 through October 31 for the protection of spring-run in the mainstem Sacramento River “whenever possible.” (2009 NMFS BiOp at p. 601.) The 2009 NMFS RPA acknowledged that “extending the range of suitable habitat by moving the compliance point downstream from Balls Ferry” must be balanced against the need to conserve storage so to accumulate a sufficient cold water pool for use during the subsequent temperature management season. (*Id.* at 602.)

¹³ The 2008 FWS and 2009 NMFS BiOps were the subject of numerous lawsuits but were ultimately upheld by the Ninth Circuit. *See San Luis v. Jewell*, 747 F.3d 581; *San Luis v. Locke*, 776 F.3d 971.

¹⁴ Shasta Dam is equipped with a temperature control device (“TCD”) that allows Reclamation to control the temperature of water released from the Dam. (BA at 4-26.) “The TCD has four levels of gates from which water can be drawn.” (*Id.*) During mid-winter and early spring, Reclamation uses the highest possible elevation gates to draw from the upper levels of the lake and conserve the deeper, colder water. (*Id.* at 4-27.) During late spring and summer, as Shasta Reservoir elevation decreases, Reclamation progresses to open deeper gates to release the colder water. (*Id.*)

1 The 2009 NMFS BiOp also addressed practices related to how much water would be
 2 carried over in storage at Shasta Reservoir from one year to the next, a concept termed “carryover
 3 storage,” that is often referred to as “end-of September” or “EOS” storage. It first explained the
 4 pre-existing approach to carryover storage:

5 Before the TCD was built, NMFS required that a 1.9 [million acre
 6 feet (“MAF”)]¹⁵ end-of-September (EOS) minimum storage level
 7 be maintained to protect the cold water pool in Shasta Reservoir, in
 8 case the following year was critically dry¹⁶ (drought year
 9 insurance). This was because a relationship exists between EOS
 10 storage and the cold water pool. The greater the EOS storage level,
 11 typically the greater the cold water pool. The requirement for 1.9
 MAF EOS was a reasonable and prudent alternative (RPA) in
 NMFS’ winter-run opinion (NMFS 1992). Since 1997, Reclamation
 has been able to control water temperatures in the upper
 Sacramento River through use of the TCD. Therefore, NMFS
 changed the RPA to a target, and not a requirement, in the 2004
 CVP/SWP operations Opinion.

12 (*Id.* at p. 250.) The 2009 NMFS BiOp continued this approach, setting forth EOS carryover
 13 storage targets in the RPA, with the lowest target being 1.9 MAF in the driest category of years,
 14 and delineating steps Reclamation must take if the various targets cannot be reached. (*See*
 15 *generally id.* at pp. 590–603.) The 2009 NMFS BiOp estimated that—based on then-available
 16 information—the 1.9 MAF target would not be met in 10% of years. (*Id.* at p. 250.) The 2009
 17 RPA also provided drought exception procedures and contingency plans if these temperatures and
 18 carryover storage targets could not be achieved. (*Id.* at p. 600.)

19 **F. Loss of Temperature Control in 2014 and 2015**

20 In 2014 California was in the third year of a drought. (2019 NMFS BiOp at p. 69.)
 21 According to PCFFA’s expert, Dr. Jonathan Rosenfield, early in 2014, Reclamation moved the
 22

23 ¹⁵ An acre foot of water is the volume of water required to cover one acre of surface area to the depth of one foot, or
 24 approximately 43,560 cubic feet. *United States v. Westlands Water Dist.*, 134 F. Supp. 2d 1111, 1139 n. 61 (E.D. Cal.
 2001).

25 ¹⁶ Water Project managers use various scales to describe hydrologic conditions. The most commonly referenced in
 26 this case is the water year type designation for the Sacramento Valley, which is determined by a formula set forth in
 27 California State Water Resources Control Board Decision 1641 on page 188. As State Plaintiffs’ expert witness Les
 28 Grober has explained: “There are five year types: critically dry, dry, below normal, above normal, and wet.”
 (11/23/21 Grober Decl., ¶ 26 n. 8.) There is also a separate water year type designation for the San Joaquin River
 watershed. (*See* 2/10/22 Conant Decl., Attachment, Doc. 451-1.)

1 temperature compliance point “far upstream above Clear Creek’s confluence with the Sacramento
 2 River,” predicting it could provide required water temperatures to that point. (3/5/20 Rosenfeld
 3 Decl., Doc. 82, ¶ 171.) However, despite initial modeling that indicated compliance was possible
 4 and despite Reclamation obtaining various waivers from state Delta outflow requirements that it
 5 asserted were necessary to maintain appropriate water temperatures, river temperatures at the
 6 revised temperature control point exceeded 56°F. (*Id.*) This resulted in temperature-dependent
 7 egg mortality in 2014 of 77% (*id.*) and extremely poor egg-to-fry survival (measured as the
 8 percentage of eggs that survived to produce fry capable of passing the Red Bluff Diversion Dam
 9 on the lower Sacramento River) of approximately 4%. (2019 NMFS BiOp at p. 69).

10 This unfortunate story repeated in 2015. (*See* 3/5/20 Rosenfeld Decl., ¶ 172.) Winter run
 11 egg-to-fry survival that year was the lowest on record (approximately three percent), “due to the
 12 inability to release cold water from Shasta Dam in the fourth year of the drought.” (*Id.*) As a
 13 result, and as the 2019 NMFS BiOp explains, “[w]inter-run [] returns in 2016 to 2018 were low,
 14 as expected, due at least in part to poor in-river conditions for juveniles from brood year 2013 to
 15 2015 during drought years.” (*Id.*) Although “[t]he 2018 adult winter-run return (2,639) improved
 16 from 2017 (977),” it was “dominated by hatchery-origin fish.” (*Id.*)

17 In 2016, after the years of drought and concerns over extremely low population numbers
 18 of winter-run and Delta smelt, FWS and NMFS reinitiated consultation under the ESA. (*See*
 19 Docs. 85-4, 85-5.) Reclamation specifically acknowledged the precarious situation of the winter-
 20 run and delta smelt in its requests for re-initiation of consultation. (*Id.*)

21 **G. 2019 Biological Opinions**

22 In January 2019, Reclamation issued a biological assessment (“BA”)¹⁷ for the Proposed
 23 Action. (*See* 2019 NMFS BiOp at p. 12.) Pursuant to the ESA, Reclamation again consulted with
 24

25 ¹⁷ Under the ESA, an agency proposing to take an action (often referred to as the “action agency”) must first inquire
 26 of FWS and/or NMFS whether any threatened or endangered species “may be present” in the area of the proposed
 27 action. *See* 16 U.S.C. § 1536(c)(1). If endangered species may be present, the action agency may prepare a BA to
 28 determine whether such species “is likely to be affected” by the action. *Id.*; 50 C.F.R. § 402.12(b). “An agency may
 avoid the consultation requirement only if it determines that its action will have ‘no effect’ on a listed species or
 critical habitat.” *Karuk Tribe of Cal. v. U.S. Forest Serv.*, 681 F.3d 1006, 1027 (9th Cir. 2012) (*en banc*) (internal
 citation omitted). If the BA determines that a threatened or endangered species is “likely to be affected,” the agency
 must formally consult with FWS and/or NMFS. *See* 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14.

1 FWS and NMFS. (*See id.*)

2 In July 2019, NMFS prepared a draft BiOp in which the agency concluded that, absent
3 constraints, the Reclamation's proposed plan as set forth in the January 2019 BA was likely to
4 jeopardize the continued existence of, and destroy or adversely modify the critical habitat of, the
5 listed salmonid species. (Doc. 85-13.) Thereafter, Reclamation and DWR incorporated changes to
6 the proposed plan, including additional commitments to address impacts to listed species. (*See*
7 2019 NMFS BiOp at pp. 12–14.)

8 A few months later, on October 21, 2019, Reclamation issued a revised, Final BA
9 describing a revised operating plan for the Water Projects (Doc. 85-12 (BA)), which constituted
10 the final Proposed Action. On the same day, NMFS issued a BiOp that concluded Reclamation's
11 revised proposed plan was not likely to jeopardize the existence of winter-run and spring-run
12 salmon and Central Valley steelhead beyond that permitted under its 2009 opinion. (*See generally*
13 2019 NMFS BiOp.) Following a very similar consultation pathway, FWS issued an opinion that
14 Reclamation's proposed plan was not likely to jeopardize the continued existence of the Delta
15 smelt or modify its habitat. (Doc. 85-1 (2019 FWS BiOp).) Having found no jeopardy, the BiOps
16 imposed no additional protective conditions on the Proposed Action, which was allowed to
17 proceed as described in Reclamation's Final BA. These related lawsuits followed.

18 **H. Temperature Management at Shasta Dam under the 2019 NMFS BiOp¹⁸**

19 The 2019 NMFS BiOp set forth a “tiered” Shasta temperature management strategy
20 designed, at least facially, to account for the real-time spatial and temporal distribution of redds
21 (egg clusters) to attempt to conserve cold water for use when it is most needed. The operation
22 manager of Reclamation's Central Valley Office, Kristin White, described this tiered approach
23 generally as follows.

24 The tiered strategy recognizes that cold water is a scarce resource
25 and that additional measures may be required when hydrology and
26 meteorology do not provide sufficient cold water to avoid
temperature dependent mortality throughout the entire temperature

27 ¹⁸ The Court recognizes that the 2019 BiOps evaluated, and approved, Water Project operations and protective
28 measures as proposed by Reclamation and described in Reclamation's Proposed Action. Purely for ease of reference,
however, the court may occasionally refer to the applicable regulatory constraints as stemming from the 2019 BiOps
themselves.

management period. The tiered strategy is intended to optimize use of cold water at Shasta for Winter-Run Chinook Salmon eggs based on life-stage-specific requirements during the temperature management season.

(3/26/20 White Decl., Doc. 119-1, ¶ 23 (citing BA at 4-31 to 4-32).)

The 2019 NMFS BiOp concluded that the Clear Creek TCP serves as a reliable surrogate for controlling temperatures at the farthest downstream redd location. (*See* 2019 NMFS BiOp at pp. 173, 237.) The tiered strategy adopts the view that using cold water too early (i.e., before redds are deposited) and/or to meet a TCP too far downstream of the actual location of redds, wastes cold water that is needed later in the season during the critical incubation season. Thus, the tiered strategy hypothetically “allows for strategically selected temperature objectives,” based on projected total storage, the available “cold water pool,” meteorology, and downstream conditions (which can influence how much water Reclamation must release for other reasons), among other things. (2019 BA at 4-28.)

The temperature targets for each “Tier” under the 2019 BiOps are as follows:

- In Tier 1 years, Reclamation will maintain daily average temperatures of 53.5°F at Clear Creek throughout the entire temperature management season (May 15 through Oct 30). (2019 NMFS BiOp at pp. 241–2.)
- In Tier 2, Reclamation will target 53.5°F at Clear Creek during the “critical egg incubation period.” (*Id.* at p. 242.)
- Tier 3 is the proposed operation when the cold water pool in Shasta Reservoir on May 1 is less than 2.3 million acre-feet or when modeling suggests that maintaining 53.5°F at the Clear Creek TCP would have higher mortality than a warmer temperature. (*Id.*) In a Tier 3 year, Reclamation would target 53.5°–56° degrees at Clear Creek during the critical egg incubation period and would consider “intervention measures.”¹⁹ (*Id.*) Reclamation would not allow temperatures to exceed 56° but would decrease

¹⁹ The “[i]ntervention measures” referenced in the 2019 NMFS BiOp include “consulting with [FWS and NMFS, increasing hatchery intake, adult rescue, and juvenile trap and haul.” (*Id.* at p. 249.) NMFS notes in the 2019 NMFS BiOp that “any benefits from implementation of these measures is not included in results presented [therein] due to their inability to be characterized by the modeling.” (*Id.* at p. 243.)

temperatures to below that during the periods of greatest temperature stress on the species. (*Id.*)

- Tier 4 conditions are “defined by mid-March storage and operations forecasts of Shasta Reservoir total storage less than 2.5 million acre-feet at the beginning of May, or if Reclamation cannot meet 56°F at Clear Creek gauge.” (*Id.* at p. 243.) In Tier 4 years, Reclamation will “initiate discussions with FWS and NMFS on potential intervention measures to address low storage conditions that continue into April and May.” (*Id.* at p. 243.)

Under the 2019 NMFS BiOp, temperature management planning begins in early February, when Reclamation prepares forecasts of water year runoff using precipitation to date, snow water content accumulations, and runoff. If, for example, May 1 storage is projected to be less than 2.5 MAF, Reclamation would initiate discussions on intervention measures for a Tier 4 year. Reclamation would then perform initial temperature modeling in early April, which is timed to coincide with the release of certain critical forecasts. This April temperature model scenario is then used to develop an initial TMP. After Reclamation determines the actual May 1 cold water pool volume, it presents a draft TMP to stakeholders the first week of May, with the final TMP being submitted to NMFS and SWRCB on or before May 20. During the temperature management “season” (i.e., the time of year when temperature is managed under the TMP), the 2019 NMFS BiOp calls for Reclamation to convene the Sacramento River Temperature Task Group at least monthly during the season and to provide real time reports on temperature performance. (*See generally* Doc. No. 363 at 25–26 (citing BA 4-15, 4-32 to 4-33 & Shasta Cold Water Pool Management Guidance Document cited therein).) NMFS provides technical assistance, review, and comment on the draft and final temperature management plans through the Sacramento River Temperature Task Group. (2019 NMFS BiOp pp. 256–57; BA 4-35.)

The 2019 NMFS BiOp plans for certain other measures designed with an intent to benefit winter-run. Among other things, the Proposed Action notes a Resolution adopted by the Sacramento River Settlement Contractors (“SRS Contractors”)²⁰, pursuant to which, during drier

²⁰ The SRS Contractors are “individuals and entities . . . that individually hold settlement agreements (the SRS

water years (Tier 3 and Tier 4), the SRS Contractors will meet and confer with Reclamation, NMFS, and other agencies as appropriate to determine if there is any role for the SRS Contractors in connection with Reclamation’s operational decision-making for Shasta Reservoir annual operations. (2019 BA at 4-89.) While a pre-determined reduction (25%) in deliveries to the SRS Contractors is automatically triggered in certain dry years under their “settlement” contracts, other actions may be considered, including: (1) modifying the scheduling of spring diversions by the SRS Contractors; (2) voluntary, compensated water transfers by the SRS Contractors subject to Reclamation approval; and (3) delayed SRS Contractor diversion for rice straw decomposition during the fall months. (*Id.*) The Proposed Action also includes non-flow measures such as spawning and rearing habitat restoration, construction of lower intakes in critical areas, and other fish passage projects. (*Id.* at 4-40 to 4-42.) Despite these, NMFS conceded in its 2019 BiOp that:

The proposed action will result in ongoing adverse effects to Sacramento River winter-run Chinook salmon. The most significant adverse effects . . . are temperature dependent egg mortality that will occur in all of the Summer Cold Water Pool Management tier types, but most significantly in tier 3 and 4 years.

(2019 NMFS BiOp at p. 753.) The plaintiffs in these lawsuits vigorously challenge on many fronts the sufficiency of the 2019 NMFS BiOp’s tiered management approach.

I. Issuance of State ITP and Negotiation of the 2022 IOP.

On March 31, 2020, after the filing of these related lawsuits, the State of California issued its Incidental Take Permit (“State ITP”) covering the operations of the SWP and addressing the impacts of the SWP on species listed under CESA. (Doc. 314-1.) Among other things, the State ITP required that the SWP’s operations abide by protective measures *in addition to those set forth in the 2019 biological opinions*. (See generally Doc. 314-1.) This created a potential for conflict (or “mis-alignment”) between SWP and CVP operations. (11/23/21 Leahigh Decl., CNRA Doc. 222, ¶ 49.) Such mis-alignment can, in turn, cause various problems, including inefficiencies and management complications. (See *id.*, ¶ 52.)

Contracts) with [] Reclamation.” (2019 NMFS BiOp at p. 8.) The SRS Contractors hold “senior” rights that pre-date the CVP and SWP, and thus Reclamation’s “without action” scenarios assume these senior rights holders would continue to divert water under their pre-CVP/SWP rights, because that is what they previously did in absence of the operation of the CVP and SWP. (BA 3-17.)

Beginning in early 2021, the parties agreed to several limited stays to allow for review of these cases by the new Biden Administration. (*See* Docs. 278 at 8–9.) In the summer of 2021, state and federal water and fisheries agencies began discussing ways to reconcile the operations of the CVP and SWP given the conflicts between the 2019 BiOps and the State ITP. On August 20, 2021, this Court issued an order staying the litigation through September 30, 2021. (Doc. 285.)

On September 30, 2021, Federal Defendants formally reinitiated consultation on the challenged biological opinions. (11/23/21 Conant Decl., Doc. 314-2, ¶ 9.) Concerned about how the projects were to be operated while the re-initiated consultation was ongoing, the court encouraged the parties to engage in the “serious task of determining how the projects will be operated during any interim period if ESA-consultation is re-initiated.” (Doc. 285 at 4.) Those efforts resulted in the filing of a motion to approve the 2022 IOP, which was the subject of extensive briefing and a day-long evidentiary hearing (*see* Doc. 377), followed by issuance of the IOP Order on March 11, 2022. (Doc. 394.)

J. Summary of 2022 IOP Provisions Relevant to Shasta Operations²¹

As approved, the 2022 IOP was primarily designed to “protect the third year class” in a row of winter-run from high mortality, given the species’ three year life cycle. (*See* 2022 IOP, Doc. 395, ¶ 14). Most relevant here, the 2022 IOP made the following changes to temperature management operations at Shasta Reservoir and relatedly to how operators planned to store water for subsequent water year temperature management needs.

- In Critical, Dry, or Below Normal years:
 - Reclamation agreed to address winter-run habitat needs by meeting daily average water temperatures at the Clear Creek gauge of 55°F (in critical years) and 54°F (for dry and below normal years) from May 1 – October 31. (*Id.* ¶ 15.) (This compares to the 56°F upper limit in Tier 3 years and no

²¹ The present briefing focuses on the IOP’s provisions related to Shasta Operations. A separate dispute exists over the IOP’s provisions related to a type of export pumping operation in the Delta termed “storm-related flexibility” (“Storm Flex”). The Court provides relevant background on Storm Flex within the context of its discussion of those IOP Provisions.

1 upper limit in Tier 4 years under the 2019 NMFS BiOp.)

- 2 ○ Reclamation further agreed to “determine” an end-of-September carryover
3 storage “goal” for Shasta Reservoir that would vary according to water
4 year type and availability of water. (*Id.* ¶ 16.) (No carryover storage goals
5 were included in the 2019 NMFS BiOp or BA which only called for
6 carryover storage to be “considered” when making operational decisions.
7 (*See* BA 4-16.))
- 8 ○ The 2022 IOP also created a new Shasta Planning Group to coordinate
9 decision making related to temperature control issues. (*Id.*, ¶ 13.) The
10 Shasta Planning Group is designed to “enhance communications between
11 agency directors and the existing Shasta technical teams for temperature
12 and flow.” (11/23/21 Brown Decl., Doc. 314-3, ¶ 33.) The Group will
13 develop and implement a monitoring and tracking system; will meet with
14 Reclamation to discuss technical input from other relevant technical teams;
15 and will confer and seek consensus on Shasta operations. (*Id.*) If the Group
16 is not able to reach a consensus on operational priorities or actions, it can
17 elevate decisions to the agency directors. (*Id.*) The Regional Administrator
18 for NMFS, after conferring with the Director of the California Department
19 of Fish and Wildlife (“CDFW”), will make an operational decision for
20 protecting listed species that Reclamation agrees to implement, consistent
21 with applicable law. (*Id.*) (This too is distinct from the 2019 NMFS BiOp,
22 which leaves Reclamation in control of the ultimate form of the final TMP
23 issued in late May.)

- 24 • In Critical or Dry years, Reclamation agreed to implement a system of operational
25 priorities, as follows:

- 26 ○ Reclamation agreed not to schedule or make deliveries of “stored water”²²

27 ²² This appears to be a reference to the general California state law concept of “stored water” as set forth in California
28 State Water Resources Control Board Regulations. *See* 23 Cal. Code Regs. § 658 (“Storage of water means the
collection of water in a tank or reservoir during a time of higher stream flow which is held for use during a time of

for any reason other than for “public health and safety”²³ until Reclamation approves a temperature management plan that will meet the winter-run habitat criteria (in the form of the temperature targets identified above) and set End-of-September storage goals. (2022 IOP, ¶ 12.i.b.) (This component of the IOP is not present under the 2019 NMFS BiOp, which, as mentioned, does not call for the completion of a TMP until late May of each year.)

- If Reclamation is unable to meet habitat criteria for the entire period of May 1–October 31, then the agencies will use the decision-making process outlined in the IOP to provide “sufficient habitat for the longest period possible.” (2022 IOP, ¶ 12.i.a.) In such a situation, the agencies will also coordinate with the “Meet and Confer Group” described in the 2019 NMFS BiOp and brief PCFFA and Defendant Intervenors in these cases. (*Id.*)

The IOP Order concluded that it was not appropriate to modify the IOP in any of the ways suggested by PCFFA’s cross-motion for injunctive relief. Most relevant to the present dispute, the Court specifically declined to impose the slightly lower temperature requirements and higher carryover storage targets advocated by PCFFA. In addition, the Court declined to prohibit or otherwise restrict Reclamation from filing any Temporary Urgency Change Petitions (“TUCPs”) with the State Water Resources Control Board (“SWRCB”)²⁴ seeking temporary relaxation of state water quality requirements set forth in SWRCB Decision-1641 (“D-1641”).²⁵

deficient stream flow. For licensing purposes all initial collections within the collection season plus refill, in whole or in part, held in a tank or reservoir for more than 30 days shall be considered water diverted for storage” with some exceptions not relevant here.).

²³ In the 2023 IOP, this is defined as meeting “Municipal and Industrial Delta salinity requirements and minimum Municipal and Industrial deliveries for Public Health and Safety.” (*Id.* ¶ 12.i.a.)

²⁴ The SWRCB holds authority under California’s Porter-Cologne Water Quality Control Act, Cal. Water Code § 13000, *et seq.*, to adopt water quality control plans to protect the waters of California. *United States v. State Water Res. Control Bd.*, No. 2:19-CV-00547-DAD-EPG, 2020 WL 9144006, at *1 (E.D. Cal. Apr. 23, 2020). The SWRCB has the power to address both water rights and water quality issues, and Reclamation is required by federal law to with SWRCB decisions. *See* CVPIA § 3406(b) (“The Secretary . . . shall operate the [CVP] to meet all obligations under State and Federal law, including . . . all decisions of the California State Water Resources Control Board establishing conditions on applicable licenses and permits for the project . . .”).

²⁵ Generally, D-1641 imposes upon Reclamation and DWR certain requirements under California law to protect long

1 The IOP Order’s specific reasoning and relevant developments since the IOP Order issued
2 are discussed in the context of the analysis below.

3 **K. 2022 Temporary Urgency Change Petition**

4 On March 18, 2022, Reclamation and DWR submitted a TUCP to the SWRCB seeking an
5 order that would relax certain state regulatory requirements under D-1641. (Doc. 417-14 (4/4/22
6 Temporary Urgency Change Order (“TUCO”)), at p. 1.) Reclamation and DWR indicated in the
7 Petition that the changes were needed because “the Projects’ storage and inflow may be
8 insufficient to meet D-1641 requirements and additional operational flexibility is needed to
9 support other Project priorities.” (*Id.*) More specifically, Reclamation claimed the TUCP was
10 necessary to “preserve upstream storage for release later in the summer” and “preserve cold water
11 in Shasta Lake and other reservoirs to manage river temperatures for various runs of Chinook
12 salmon and steelhead.” (Doc. 417-19 (3/18.22 Petition for Change) at 11.)

13 PCFFA filed objections with the SWRCB to the Petition on the ground that relaxing the
14 standards as requested would unreasonably harm fish and wildlife, including Chinook salmon,
15 steelhead, and Delta Smelt, because it allowed Reclamation to reduce flows through the Delta to
16 levels that will be detrimental to fish without improving upstream storage in any way that would
17 provide benefits to fish species. (Doc. 417-18 at 3–7.) Notwithstanding those objections, the
18 TUCP was approved April 4, 2022. (4/4/22 TUCO at p. 52.) The SWRCB provided the following
19 summary of its reasoning for the approval:

20 Overall, the TUCP is expected to have a negative impact on the
21 Delta smelt population by reducing recruitment and survival rates
22 and degrading the habitat extent and quality. However, reductions
23 in Delta outflow combined with export restrictions are expected to
24 preserve upstream storage by up to 500 TAF or more, which will be
25 important for the protection of fish and wildlife beneficial uses, and
the ecosystem as a whole, and salinity control in the Delta later in
the year in the event dry conditions continue through 2022 and into
2023.

26 term fishery “beneficial uses.” *See San Luis & Delta-Mendota Water Auth. v. United States*, 672 F.3d 676, 692 (9th
27 Cir. 2012). These include flow requirements on the lower San Joaquin River and elsewhere in the Delta and
28 directives to assign responsibility for meeting salinity objectives to protect agricultural water users in the Delta. (*See*
generally D-1641, https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641_1999dec29.pdf (last visited Feb. 9, 2023).)

(*Id.* at p. 24.)²⁶

L. Overview of Pending Motions

Though the pending motions are complex and voluminous, the disputed issues are somewhat narrower in scope than those addressed in the IOP Order. The changes proposed to the 2022 IOP as set forth in the 2023 IOP are relatively modest. Moreover, those parties that are objecting/proposing changes to the 2023 IOP have repeated many arguments raised previously, albeit sometimes enhancing those arguments based upon the record as it has developed over the past year. In addition, the following defendant-intervenors do not object to or take no position on the Court’s adoption of the 2023 IOP: Contra Costa Water District, City of Roseville, and City of Folsom (Doc. 410); San Luis & Delta Mendota Water Authority and Westlands Water District (Doc. 411); and the State Water Contractors (Doc. 412).²⁷

PCFFA objects to the 2023 IOP unless it is modified. In relation to Shasta Operations, PCFFA again requests that the Court: (a) impose slightly lower temperature targets (by half a degree Fahrenheit) for winter-run during the temperature management season; and (b) require that Reclamation “manage operations to meet” higher carryover storage goals. Should circumstances render it impossible for Reclamation to meet the temperature targets, PCFFA also now asks the court to require Reclamation to specifically explain in a public document why it is unable to do so. (Doc. 416-2. at 6, 8.) In addition, PCFFA again seeks to preclude Reclamation from filing a TUCP unless it first curtails deliveries to all CVP contractors (with some limited exceptions for human health and safety.) (*Id.* at 10.) Finally, PCFFA again seeks to limit the use of an operation deemed “storm-related flexibility.” (*Id.* at 3–4.)

The SRS Contractors also object to the 2023 IOP. (Doc. 414.) In sum, they argue that the moving parties do not meaningfully demonstrate that the IOP accomplished anything that would not have taken place under the 2019 NMFS BiOp. (Doc. 414 at 3.) They further suggest that in

²⁶ Quite literally at the eleventh hour relative to the issuance of this order, the Federal Defendants and State Plaintiffs informed the Court that they were seeking another TUCP for February and March of this year in relation to outflow requirements in the Delta. That TUCP is discussed below in the context of PCFFA’s objections to the IOP.

²⁷ The State Water Contractors indicate generally that they take no position on the request to extend the IOP, but nonetheless have filed a lengthy brief addressing numerous “concerns.” The Court addresses those concerns as relevant below.

some respects the approach taken by the IOP may have made things worse, not better, for winter-run because of the single-minded focus on temperatures, to the exclusion of other factors that can influence survival, such as flows. (*See id.* at 8–9.) They also maintain that the IOP ignored numerous other actions that could have helped protect winter run. (*Id.* at 9.) The SRS Contractors further argue that the proponents of the IOP have not fully informed the court of harms to other species caused by the IOP, (*id.* at 10) and other negative impacts (*id.* at 11). They also reiterate, with slight variations, their previous argument that the IOP should be rejected because it was not subjected to environmental review. (*Id.* at 13.) Finally, the SRS Contractors argue that the IOP’s provisions conflict with state water law insofar as they restrict senior water rights deliveries. (*Id.* at 14–15.)

Friant Water Authority and Arvin-Edison Water Storage District join the objections of the SRS Contractors, with the exception of the SRS Contractors’ argument that the IOP runs contrary to state water law and policy in that it interferes with the SRS Contractors’ senior rights. (Doc. 413.) All parties agreed that no hearing is needed (*see* Doc. 308), so these matters were taken under submission on the papers.

III. STANDARDS OF DECISION

A. Applicable Standards of Decision Articulated in the IOP Order

Leading up to the IOP Order, the parties took what can only be described as a “throw every standard at the wall and see what sticks” approach to briefing the appropriate standard(s) of decision applicable to the various injunctive relief proposal. (*See* IOP Order at 60–61.) The Court engaged in a thorough examination of the competing standards and then articulated several key holdings relevant here.

First, the Court concluded that jurisprudence related to approval of consent decrees represents “the best—and possibly the only practical way—to approach the interim injunctive relief proposals in this case.” (*Id.* at 71.) This is because “the IOP [is] a stipulation among the parties to the *CNRA* case regarding the form of injunctive relief those parties believe should be imposed . . .” (*Id.*)

Where a stipulation results in the termination of claims, it is often

1 termed a “consent decree.” *See Gates v. Shinn*, 98 F.3d 463, 468
 2 (9th Cir. 1996). Courts draw upon relatively well-developed
 3 standards when determining whether it is appropriate to adopt a
 4 consent decree. Approval of a proposed consent decree lies within
 5 the discretion of a district court. *See United States v. Oregon*, 913
 6 F.2d 576, 580 (9th Cir. 1990). A district court may approve a
 7 consent decree when the decree is “fair, reasonable and equitable
 8 and does not violate the law or public policy.” *Turtle Island*
 9 *Restoration Network v. U.S. Dep’t of Com.*, 672 F.3d 1160, 1165
 10 (9th Cir. 2012). If the consent decree “comes within the general
 11 scope of the case made by the pleadings, furthers the objectives
 12 upon which the law is based, and does not violate the statute upon
 13 which the complaint was based, the agreement should be entered by
 14 the court.” *Hawaii’s Thousand Friends, Life of Land, Inc. v.*
 15 *Honolulu*, 149 F.R.D. 614, 616 (D. Haw. 1993) (quoting *Sierra*
 16 *Club, Inc. v. Elec. Controls Design Inc.*, 909 F.2d 1350, 1355 (9th
 17 Cir. 1990)). Additionally, the court must “be satisfied that the
 18 decree represents a reasonable factual and legal determination.”
 19 *Oregon*, 913 F.2d at 581 (internal quotation omitted). A court’s
 20 discretion should be exercised in favor of the strong policy favoring
 21 voluntary settlement of litigation because settlements “conserve
 22 judicial time and limit expensive litigation,” *Ahern v. Cent. Pac.*
 23 *Freight Lines*, 846 F.2d 47, 48 (9th Cir. 1988), but a court must
 24 nonetheless independently scrutinize its terms and avoid “rubber
 25 stamp approval,” *United States v. Montrose Chem. Corp. of Cal.*,
 26 50 F.3d 741, 747 (9th Cir. 1995); *see also Local No. 93, Int’l Ass’n*
 27 *of Firefighters v. City of Cleveland*, 478 U.S. 501, 525 (“[A] federal
 28 court is more than a recorder of contracts from whom parties can
 purchase injunctions; it is an organ of government constituted to
 make judicial decisions.”).

The Ninth Circuit recognized in *Federal Trade Commission v. Enforma Natural Products, Inc.*, that standards applicable to the review of consent decrees are relevant to stipulated injunctions as well, because a stipulated injunction is effectively a “temporary settlement” of a lawsuit. 362 F.3d 1204, 1218 (9th Cir. 2004).

(IOP Order at 71–73; *see also id.* at 74 (noting that “by applying at least some principles from consent decree review to the stipulated injunction in that case, the Ninth Circuit’s ruling in *Enforma* gives strong support for the proposition that it is appropriate to draw from consent decree jurisprudence to evaluate stipulated injunctions”).)

Second, and relatedly, the Court rejected PCFFA’s contention that the IOP must “avoid jeopardy” to be adopted. (*Id.* at 67–69.) Though the ESA imposes upon the CVP and SWP operators a *substantive* obligation to ensure that agency action is not likely to jeopardize the continued existence of any ESA-listed species or result in the destruction or adverse modification

of a listed species’ designated critical habitat, *see* 16 U.S.C. § 1536(a)(2), in this Circuit, “[i]t is not an abuse of discretion for a court to issue an injunction that *does not completely prevent the irreparable harm that it identifies*.” *See Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 886 F.3d 803, 823 (9th Cir. 2018) (“*NWF III*”) (emphasis added). The Court concluded that this rule applies with equal force in the context of the approval of a consent decree:

[I]n *Turtle Island*, intervenors argued that the injunctive relief contained within the proposed consent decree was unreasonable because Federal Defendants did not comply with the ESA’s best available science requirement, 16 U.S.C. § 1536(a)(2), before entering into the agreement. *Turtle Island*, 834 F. Supp. at 1015–16. But, as the district court in that case observed, “[p]rovided that the proposed consent decree is fair, reasonable, and equitable, and does not violate the law or public policy, it need not utilize the best scientific evidence. Such a requirement would transform evaluation of a proposed consent decree into a decision on the merits in contravention of controlling authority.” *Id.* at 1019 (citing *Oregon*, 913 F.2d at 582) . . .

In sum, while jeopardy is certainly relevant, the court is not convinced that every injunction imposed in an ESA [case] must demonstrably “avoid jeopardy.” Or, conversely, that a court cannot adopt an injunction unless it demonstrably “avoids jeopardy.” While a court “must act within the bounds of the [applicable] statute[s] and without intruding upon the administrative province,” it “may adjust its relief to the exigencies of the case in accordance with the equitable principles governing judicial action.” *NWF III*, 886 F.3d at 823.

(IOP Order at 69.)

Third, at a bare minimum,²⁸ the “traditional” standard for the imposition of preliminary injunctive relief applies to any competing requests for relief not included within the stipulated IOP’s terms. The IOP Order articulated the familiar standards in detail:

²⁸ A preliminary injunction “can take two forms,” either a “prohibitory injunction” or a “mandatory injunction.” *Marlyn Nutraceuticals, Inc. v. Mucos Pharma GmbH & Co.*, 571 F.3d 873, 878–79 (9th Cir. 2009). A “Prohibitory injunction” simply “preserve[s] the *status quo* pending a determination of the action on the merits,” while a “mandatory injunction” “orders a responsible party to take action.” *Id.* (quotation omitted). In the context of injunctive relief, “[t]he *status quo* means the last, uncontested status which preceded the pending controversy.” *Garcia v. Google, Inc.*, 786 F.3d 733, 740 n.4 (9th Cir. 2015) (internal quotation omitted). Mandatory injunctions are “particularly disfavored,” and a plaintiff’s burden is “doubly demanding” when seeking one. *Id.* “In general, mandatory injunctions are not granted unless extreme or very serious damage will result and are not issued in doubtful cases.” *Marlyn Nutraceuticals*, 571 F.3d at 879 (internal quotation marks and citation omitted). Consequently, in seeking a mandatory injunction plaintiffs must “establish that the law and facts *clearly favor*” their position. *Garcia*, 786 F.3d at 740 (emphasis in original). As the Court previously explained, other courts have found that the mandatory injunction standard applies under somewhat similar circumstances. (*See* IOP Order at 62–63 (collecting cases).) The Court finds it unnecessary to determine whether the mandatory injunction standard applies here because PCFFA has failed to meet its burden under the more relaxed, traditional standard.

The “traditional” standard for the imposition of preliminary injunctive relief “requires a party to demonstrate ‘that he is likely to succeed on the merits, that he is likely to suffer irreparable harm in the absence of preliminary relief, that the balance of equities tips in his favor, and that an injunction is in the public interest.’” *Stormans, Inc. v. Selecky*, 586 F.3d 1109, 1127 (9th Cir. 2009) (quoting *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 20 (2008)); *see also Ctr. for Food Safety v. Vilsack*, 636 F.3d 1166, 1172 (9th Cir. 2011) (“After *Winter*, ‘plaintiffs must establish that irreparable harm is likely, not just possible, in order to obtain a preliminary injunction.”); *Am. Trucking Ass’n, Inc. v. City of Los Angeles*, 559 F.3d 1046, 1052 (9th Cir. 2009). The Ninth Circuit has also held that an “injunction is appropriate when a plaintiff demonstrates . . . that serious questions going to the merits were raised and the balance of hardships tips sharply in the plaintiff’s favor.” *All. for Wild Rockies v. Cottrell*, 632 F.3d 1127, 1134–35 (9th Cir. 2011) (internal quotation and citation omitted).²⁹ For the purposes of injunctive relief, “serious questions” refers to questions which cannot be resolved one way or the other at the hearing on the injunction and as to which the court perceives a need to preserve the *status quo* lest one side prevent resolution of the questions or execution of any judgment by altering the *status quo*. Serious questions are substantial, difficult and doubtful, as to make them a fair ground for litigation and thus for more deliberative investigation.

Republic of the Philippines v. Marcos, 862 F.2d 1355, 1362 (9th Cir. 1988) (quotations marks and citation omitted).

The party seeking an injunction bears the burden of proving these elements. *Klein v. City of San Clemente*, 584 F.3d 1196, 1201 (9th Cir. 2009); *see also Caribbean Marine Servs. Co. v. Baldrige*, 844 F.2d 668, 674 (9th Cir. 1988) (citation omitted) (“A plaintiff must do more than merely allege imminent harm sufficient to establish standing; a plaintiff must demonstrate immediate threatened injury as a prerequisite to preliminary injunctive relief.”). Finally, an injunction is “an extraordinary remedy that may only be awarded upon a clear showing that the plaintiff is entitled to such relief.” *Winter*, 555 U.S. at 22.

That said, “[e]nvironmental injury, by its nature, can seldom be adequately remedied by money damages and is often permanent or at least of long duration, *i.e.*, irreparable.” *Amoco Prod. Co. v. Vill. of Gambell*, 480 U.S. 531, 545 (1987). In the context of the ESA, “Congress has spoken in the plainest of words, making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities . . .” *TVA v.*

²⁹ The Ninth Circuit has found that this “serious question” version of the circuit’s sliding scale approach survives “when applied as part of the four-element *Winter* test.” *All. for the Wild Rockies*, 632 F.3d at 1134. “That is, ‘serious questions going to the merits’ and a balance of hardships that tips sharply towards the plaintiff can support issuance of a preliminary injunction, so long as the plaintiff also shows that there is a likelihood of irreparable injury and that the injunction is in the public interest.” *Id.* at 1135.

Hill, 437 U.S. at 194. To show irreparable harm in the context of the ESA, plaintiffs do not need to demonstrate an “extinction level” threat. *See* [NWF III], 886 F.3d [at] 818–19 [] (“NWF III”) (indicating without specifying that some “lesser magnitude” of harm will suffice); *see also Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 524 F.3d 917, 930 (9th Cir. 2008) (“NWF II”) (finding that an agency “may not take action that deepens [pre-existing/baseline] jeopardy by causing additional harm”). Thus, for example, impeding a listed species’ progress toward recovery may suffice to satisfy the irreparable harm requirement. *Wishtoyo Found. v. United Water Conservation Dist.*, No. CV 16-3869-DOC (PLAx), 2018 WL 6265099, at *65 (C.D. Cal. Sept. 23, 2018), *aff’d*, 795 F. App’x 541 (9th Cir. 2020); *see also PCFFA v. Gutierrez*, 606 F. Supp. 2d [1195,] 1207–10, 1249 [(E.D. Cal. 2008)].

Any injunction must be narrowly tailored to avoid the irreparable harm identified. *NWF III*, 886 F.3d at 823. “There must be a sufficient causal connection between the alleged irreparable harm and the activity to be enjoined, but a plaintiff need not further show that the action sought to be enjoined is the exclusive cause of the injury.” *Id.* (internal quotation and citation omitted). Moreover, “[i]t is not an abuse of discretion for a court to issue an injunction that does not completely prevent the irreparable harm that it identifies.” *Id.* Finally, a court may decline to impose injunctive relief that is infeasible. *See NWF v. NMFS*, No. CV 01-640-RE, 2005 WL 3576843, at *7 (D. Or. Dec. 29, 2005) (declining to order requested ESA relief where the proposed measures were not feasible).

(IOP Order at 61–64.)

B. Renewed Arguments Regarding Standards of Decision

Federal Defendants assert that the IOP Order’s rulings regarding the applicable standards of decision are “law of the case” and therefore that the Court should not revisit its rulings on those issues. (*See* Doc. 406 at 9 (citing *Thomas v. Bible*, 983 F.2d 152, 154 (9th Cir. 1993) (under the law of the case doctrine, “a court is generally precluded from reconsidering an issue that has already been decided by the same court.”).) Though their general description of the law of the case doctrine is correct, the doctrine is more nuanced than Federal Defendants acknowledge. “The law of the case doctrine does not . . . bar a court from reconsidering its own orders before judgment is entered or the court is otherwise divested of jurisdiction over the order.” *See Askins v. U.S. Dept. of Homeland Sec.*, 899 F.3d 1035, 1042 (9th Cir. 2018); *see also Dreith v. Nu Image, Inc.*, 648 F.3d 779, 787–88 (9th Cir. 2011) (“[A] district court has the inherent power to revisit its non-final orders, and that power is not lost when the case is assigned mid-stream to a second

1 judge.”). “That leaves the district court free to correct any errors or misunderstandings without
2 having to find that its prior decision was ‘clearly erroneous.’” *Askins*, 899 F.3d at 1043.
3 Nonetheless, just because the Court may reconsider the conclusions of the IOP Order does not
4 mean that it will be moved to do so. *See id.* at 1043 (“The district court may decide the second
5 motion . . . in the same way it decided the first.”). As discussed below, to the extent the parties
6 have renewed their challenges regarding the standards of decision, those renewed arguments are
7 not compelling.

8 For example, in this round of briefing, PCFFA revisits several arguments it offered
9 previously regarding the standards of decision. First, in a footnote, PCFFA reiterates its position
10 that the traditional injunctive relief standard—not the consent decree caselaw—is the appropriate
11 one to apply to the IOP. PCFFA offers no new argument on this dispute. The Court has carefully
12 reviewed the IOP Order’s and declines to depart from Judge Drozd’s reasoning on this point. The
13 consent decree standard best fits the unique procedural landscape and practical realities of this
14 case.

15 Next, again in a footnote, PCFFA revisits its argument that avoidance of jeopardy is not
16 only a factor the court should consider in determining whether the 2023 IOP is reasonable but is a
17 “requirement for any interim relief ordered in an EAS Case.” (Doc. 416 at 20 n.11 (citing *NWF II*,
18 524 F.3d at 929–31).) After careful consideration, the IOP Order rejected this argument because
19 such a rule would “run headlong into general principles governing a court’s exercise of its
20 equitable authority.” (IOP Order at 69.) This reasoning is sensible and PCFFA does not offer any
21 compelling argument to depart from it.

22 Finally, PCFFA suggests that the Court can modify the proponent’s version of the 2023
23 IOP in the various ways advocated by PCFFA, so long as the Court provides appropriate findings
24 of fact and notice to the parties of any changes it plans to make. (Doc. 41 at 20 (citing *Enforma*,
25 362 F.3d at 1218).) The Court discussed *Enforma* in some detail in the IOP Order. (*See* IOP
26 Order at 73.) As relevant here, the Ninth Circuit held in *Enforma* that the district court erred by
27 making two significant changes to a proposed consent decree prior to approving it. *See* 362 F.3d
28 at 2018. Rather, “[i]f the district court elects to enter a preliminary injunction that varies from the

1 injunction the parties proposed, it should be supported by findings of fact and conclusions of law
 2 entered on the record and upon notice to the parties.” *Id.* at 1218–19. PCFFA suggests that its
 3 own motion proposing modifications to the IOP is sufficient notice under *Enforma*. (Doc. 416 at
 4 20.) Relatedly, the SRS Contractors, who propose their own modifications to the 2023 IOP,
 5 suggest that *Enforma*’s requirements for notice are not applicable to modest changes that “do not
 6 affect the IOP’s basic operational requirements.” (Doc. 436 at 6 n 5.) The Court finds it
 7 unnecessary to parse *Enforma* in the ways these parties request, because it finds that imposition of
 8 their various proposed alternative remedies is not warranted for other reasons. PCFFA is correct,
 9 however, that its proposed alternatives may be treated as a request for injunctive relief, as the
 10 Court did in the IOP Order. (*See* IOP Order at 113–19.)

11 The SRS Contractors appear to be advancing one additional argument regarding the
 12 standard of decision. In their opening brief, the SRS Contractors argue that the 2023 IOP is “not
 13 *necessary*, fair, reasonable, equitable, and will continue to violate state and federal law and public
 14 policy.” (Doc. 414 at 2 (emphasis added).)³⁰ This argument does not faithfully reflect the relevant
 15 standard, which is whether the 2023 IOP is “fair, reasonable and equitable and does not violate
 16 the law or public policy.” *See Turtle Island*, 672 F.3d at 1165. Crucially, the SRS Contractors
 17 have added the word “necessary” and used that addition as the foundation for extensive argument.
 18 For example, they argue that “extending the IOP is *unnecessary* because it does not prevent any
 19 appreciable harm to winter-run chinook salmon that would have occurred under the 2019 NMFS
 20 BiOp.” (Doc. 414 at 2.) The State Water Contractors, who do not object to approval of the 2023
 21 IOP, filed a separate brief emphasizing that necessity is not in the relevant standard, in part
 22 because they want to ensure that the Court does not make a finding that the IOP is “necessary to
 23 prevent irreparable harm” to the listed species. (Doc. 412 at 2.)³¹ No authority requires a finding

24 _____
 25 ³⁰ To be fair, Federal Defendants and State Plaintiffs used the word “necessary” in their own briefing, arguing that
 the IOP is “still necessary,” (*see, e.g.*, Doc. 406 at 5), but this appears to have been an effort at emphasis rather than a
 suggestion that “necessity” was part of the standard.

26 ³¹ The State Water Contractors’ also expresses concerns that provisions of the IOP may preclude the CVP from
 27 satisfying its shared responsibilities to meet Delta water quality requirements and that as a result, the SWP may have
 28 to make up any deficit. (Doc. 412 at 6.) But, particularly when framed in the context of a notice of no position, it is
 unclear how the Court is supposed to act upon this concern.

of “necessity.” Rather, the Court will view the record through the lens of the standard that applies, namely, whether the 2023 IOP is “fair, reasonable and equitable and does not violate the law or public policy.”

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IV. EVIDENTIARY DISPUTES

The parties have raised numerous objections to the evidence presented in connection with the pending motions. The Court finds it unnecessary to address all of the objections in detail because it has not relied upon much of the disputed material. Where the Court cites disputed material, it addresses any objections it finds to be material in situ. To the extent any party has raised a relevance objection, if the Court has cited the evidence, it has deemed it “relevant” for purposes of Federal Rule of Civil Procedure 403 and implicitly overrules any relevance objection. To the extent the Court has not directly addressed an objection to cited material, its silence should be taken as a conclusion that the objection was either inapposite or wholly unconvincing.

Relatedly, several parties have requested that the Court take judicial notice of documents in the public record (*see* Docs. 415, 418, 444), those requests are GRANTED as to any such documents that have been cited herein. To the extent those documents have not been cited, the requests for judicial notice are DENIED AS MOOT.

V. ANALYSIS OF THE 2023 IOP³²

As was the case in the IOP Order, the Court structures its review of the 2023 IOP around the general rule that a district court may enter a proposed consent judgment, or in this case approve a stipulated injunction, “if the court decides that it is fair, reasonable, and equitable and does not violate the law or public policy.” *Sierra Club*, 909 F.2d at 1355.

A. Fairness

“Fairness should be evaluated from the standpoint of signatories and nonparties to the decree.” *Turtle Island*, 834 F. Supp. 2d at 1016 (internal citations and quotations omitted). “In

³² The Court has not found it practical to include a separate “findings of fact” section in this order; rather, it has included relevant discussion of the factual record within its analysis. To the extent that any finding in the analysis section could be interpreted as a finding of fact rather than a conclusion of law, that is the Court’s intent, as is the reverse.

determining whether a proposed consent decree is fair, courts examine both procedural and substantive fairness.” *Id.*; see also *United States v. Pac. Gas & Elec.*, 776 F. Supp. 2d 1007, 1024 (N.D. Cal. 2011) (“*PG&E*”).

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1. Procedural Fairness

The IOP Order explained how procedural fairness is to be evaluated:

To evaluate procedural fairness, the court must determine whether the negotiation process was “fair and full of adversarial vigor.” *United States v. Chevron*, 380 F. Supp. 2d 1104, 1110–11 (N.D. Cal. 2005). If the decree is the product of “good faith, arms-length negotiations,” it is “presumptively valid.” *Id.* (quoting *Oregon*, 913 F.2d at 581). At the same time, “the district court must ensure that the agreement is not . . . a product of collusion . . .” *PG&E*, 776 F. Supp. 2d 1025.

(IOP Order at 80.) Applying these standards, the IOP Order found that the 2022 IOP was produced from intensive negotiations that lasted more than two months, with meetings that occurred sometimes multiple times per week. (*Id.* at 81.) The Court rejected Defendant Intervenors’ argument that negotiations between the Federal Defendants and State Plaintiffs were “politically-motivated” and therefore were not undertaken in good faith. (*Id.*) Instead, the IOP Order found that because Federal Defendants have maintained throughout these proceedings that they have not violated the law, whereas State Plaintiffs consistently maintained the contrary position, the IOP negotiations were not tainted by collusion. (*Id.*) Moreover, the Court found that there was no requirement that the negotiations be inclusive because “[t]he Government need not allow third parties to participate in settlement negotiations.” (*Id.* at 83 (citing *Turtle Island*, 834 F. Supp. 2d at 1020–21; see also *id.* (“So long as a party is given the opportunity to ‘air its objections and the district court has determined that the settlement is fair and reasonable, a party’s lack of consent will not block the entry of the consent decree/temporary settlement.”).)

This time around, there is no suggestion that the postures of the Federal Defendants and State Plaintiffs have changed; they remain adversarial. (See Doc. 406 at 10.) Discussions about the 2023 IOP began in June 2022, several months before the 2023 IOP was finalized and presented to the Court, and meetings between Federal Defendants and State Plaintiffs occurred at

1 least weekly through the end of August 2022. (Doc. 405, ¶ 6.) No objecting party presents any
 2 new information to suggest the outcome as to the procedural fairness analysis should change.

3 ///

4 ///

5 2. Substantive Fairness³³

6 In evaluating substantive fairness, it is “important for the district court to be fully
 7 informed regarding the costs and benefits of the decree.” *Chevron*, 380 F. Supp. 2d at 1113
 8 (citing *Montrose Chem. Corp.*, 50 F.3d at 746). However, “[i]t is not the duty of the court to
 9 determine whether ‘the settlement is one which the court itself might have fashioned, or considers
 10 ideal.’” *Chevron*, 380 F. Supp. 2d at 1111 (quoting *United States v. Cannons Eng’g Corp.*, 899
 11 F.2d 79, 84 (1st Cir. 1990).). Rather, substantive fairness “mirrors the requirement that the decree
 12 be equitable.” *U.S. v. Telluride*, 849 F. Supp. 1400, 1402 (D. Co. 1994). Put another way, the
 13 substantive fairness inquiry “concerns the issues of corrective justice and accountability.” *Arizona*
 14 *ex rel. Woods v. Nucor Corp.*, 825 F. Supp. 1452, 1458 (D. Ariz. 1992), *aff’d sub nom. Arizona v.*
 15 *Components Inc.*, 66 F.3d 213 (9th Cir. 1995). “[T]he court’s approval is nothing more than an
 16 amalgam of delicate balancing, gross approximations and rough justice.” *Oregon*, 913 F.2d at 581
 17 (internal quotations omitted). The court “need only be satisfied that the decree represents a
 18 ‘reasonable factual and legal determination.’” *Id.*

19 The IOP Order relied upon *Hawaii’s Thousand Friends*, 149 F.R.D. at 616, to provide a
 20 general, practical approach to its analysis of the 2022 IOP, which Judge Drozd concisely
 21 described as “a complex package of measures that is layered on top of one of the most complex
 22 regulatory schemes in all of environmental law.” (IOP Order 84.) In *Hawaii’s Thousand Friends*,
 23 the district court found that a consent decree (or here a stipulated injunction) should be approved
 24 if it “comes within the general scope of the case made by the pleadings, furthers the objectives

25 ³³ Some courts treat the “substantive fairness” alongside the “reasonableness” inquiry, as though they overlap
 26 considerably, if not completely. *See, e.g., Berendo Prop. v. Closed Loop Ref. & Recovery Inc.*, No. CV-22-01721-
 27 PHX-SMM, 2022 WL 16950141, at *2 (D. Ariz. Nov. 15, 2022). Other courts identify “reasonableness” as the
 28 broader inquiry, which encompasses fairness (both procedural and substantive) and consistency with relevant laws
 and policies. *See California Dep’t of Toxic Substances Control v. Mid Valley Dev., Inc.*, No. 2:02-CV-00018-GEB-
 GGH, 2011 WL 13366014, at *1 (E.D. Cal. July 29, 2011). The Court will not belabor the semantics. Either way, the
 Court has evaluated the key issues herein.

1 upon which the law is based, and does not violate the statute upon which the complaint was
2 based.” 149 F.R.D. at 616. Following this rubric, the IOP Order found “[i]n a broad sense,” that
3 “the IOP addresses real disputes between Federal Defendants and State Plaintiffs in meaningful
4 and reasonably practical ways,” (*id.*) that the central components of the IOP came “within the
5 general scope of the case made by the pleadings,” and that the 2022 IOP meaningfully and
6 reasonably addressed each of those issues, keeping in mind the central role of the Court, which is
7 to determine whether the IOP “furthers the objectives upon which the law is based.” *Id.*

8 The analysis below discusses only those matters that are in dispute now and are relevant to
9 determining whether renewal is appropriate and/or whether it is appropriate to modify the
10 proposed 2023 IOP. As was the case in the IOP Order, after first discussing some general
11 justifications for renewing the IOP, the Court will divide its substantive fairness discussion
12 between issues related to operations at the Shasta Dam and those related to operations in the
13 Delta.

14 The Court finds it necessary to preview its discussion of substantive fairness with some
15 observations about the overall presentation made by the Federal Defendants and State Plaintiffs.
16 In moving to extend the IOP for another year, those parties appear to have decided to largely
17 “ride the coattails” of the extensive analysis the Court performed in the IOP Order. As mentioned,
18 it is “important for the district court to be fully informed regarding the costs and benefits of the
19 decree.” *Chevron*, 380 F. Supp. 2d at 1113. In particular, Federal Defendants have presented
20 relatively limited factual evidence relating to the performance of the 2022 IOP’s Shasta Reservoir
21 provisions, making it difficult for the Court to properly perform its constitutional role in these
22 proceedings. Part of the reason for this thinner presentation appears to be the Court’s own need to
23 have sufficient time to review the matter before issuing a ruling. As a result, the parties began
24 briefing these motions well before “the verdict was in” on the performance of the 2022 IOP. This
25 appears to have stunted any effort to present the Court with a cogent evaluation of the 2022 IOP’s
26 impacts. Moreover, the mysteries and uncertainties, (*see generally* IOP Order at 64), that have
27 plagued management of these ecosystems for years continue to complicate the ability of any party
28 to intelligently move the ball forward. From the Court’s perspective, the one thing that clearly

emerges from the present record is that no one—not Water Project managers, not any other party, and not even the scientific community—can satisfactorily explain why winter-run mortality was so high in the Upper Sacramento River in 2022. As is discussed in greater detail below, temperature related mortality (the focus of the 2022 IOP) appears to have remained fairly low in 2022, despite very dry conditions overall. The parties debate whether the 2022 IOP was responsible for the lower-than-expected temperature-related mortality in 2022, but no one seems to dispute that the winter-run nonetheless had disastrously poor egg-to-fry survival rates in 2022. The opposing parties claim to be able to put their finger on one or more reasons for this situation, but, as has been the case throughout this litigation, their presentations pull in opposite directions, with one side claiming more stringent temperature controls are needed, and the other side claiming that the single-minded focus on temperatures did not and will not work because it ignores other important factors. Neither side has presented particularly compelling arguments in support of their position and certainly not in any way that suggests practical actions should be added to the IOP for immediate implementation. In an attempt to ensure that goals of the ESA are furthered in a narrowly tailored manner while remand is proceeding, the Court again reaches the conclusion that adopting the 2023 IOP is the best way to protect the species under the circumstances, particularly because it remains unclear whether the most controversial parts of the 2023 IOP will even apply in WY 2023.

a. *General Considerations*

i. The IOP Corrects Mis-Alignment of the CVP and SWP

The record supports a finding that the IOP corrects in part misalignments between the CVP and the SWP caused by the State ITP. (9/30/22 Leahigh Decl., Doc. 406-5, ¶ 21.) As the IOP Order explained: “While the State’s ITP on its face only constrains the operations of state agencies (i.e. the California Department of Water Resources), the state and federal projects are operated in concert with one another. Federal Defendants and State Plaintiffs persuasively assert that a disconnect of this nature can cause inefficiencies in the use and management of water resources.” (IOP Order at 18.) John Leahigh, DWR’s Water Operations Executive Manager, provided additional support for this finding: “From a project operator perspective, misalignment

between CVP and SWP operations creates significant challenges for management of the two projects. There is no clear guidance on how the differing export constraints would fit within the current [Coordinated Operating Agreement] framework between the two Projects.” (11/23/21 Leahigh Decl., ¶ 52; *see also* 11/23/21 Conant Decl., ¶¶ 7–8 (echoing that “[A]lignment in years where there is not enough water to meet all project needs, such as occurred in water year 2021, improves the efficient use of scarce water supplies. Reclamation has concerns that implementing inconsistent CVP and SWP operations would be inefficient and could result in both projects’ being unable to maximize available water, especially in dry hydrology.”).) No party appears to question this reasoning. This rationale continues to provide support for extending the IOP.

ii. The IOP Prevents Unnecessary Litigation

The IOP also represents a temporary settlement of a highly complex lawsuit. Though the approval of the IOP has been incredibly time consuming, the Court is confident that, relatively speaking, this process has saved judicial and party resources, including resources needed to complete the ongoing remand. (*See* 9/30/22 Marcinkevage Decl., Doc. 406-3, ¶ 18 (indicating that further litigation would harm the ability of agency staff to complete the remand process).) The Court cannot overemphasize the importance of this consideration. Even if it did not have only limited resources to devote to this case, the Court would be hard-pressed to find that any court is well-positioned to determine how these highly complex water projects should be managed on an interim basis.

b. *Shasta Operations & Related Issues*

i. Water Supply Considerations

The bulk of the briefing about approval of the 2023 IOP concerns disputes about IOP provisions related to the operation of Shasta Dam/Reservoir. By their own terms, as discussed in greater detail below, these provisions will only be triggered if the water year is classified as Critical, Dry, or Below Normal, with certain of the more controversial provisions only applying in Critical or Dry years (2023 IOP, ¶ 4.) Relatedly, much if not all, of the rationale provided for the IOP’s Shasta provisions assumes that dry conditions would continue through 2023. (*See, e.g.*, Doc. 406 at 5).

Large precipitation events in January 2023 improved the water supply outlook in many parts of California, most notably in the central part of the state, where it is highly likely that conditions will be “Above Normal” or wetter regionally. (*See* 2/10/23 Conant Decl., Doc. 457, at ¶ 13 (discussing the San Joaquin River index).) However, the outlook is not as clear for the Sacramento Valley, in which the Shasta Reservoir/Dam is located. Based on current information, the likelihood of a Critical, Dry, or Below Normal water year type being declared in that region is less than 50%. (*Id.* at ¶ 17.) In other words, there is a greater than 50% chance that the provisions of the IOP that only apply in Critical, Dry, or Below Normal Water Years will not be triggered. (*Id.*) Current information allows for slightly greater certainty as to those provisions that only apply in Critical or Dry years (e.g., 2023 IOP ¶ 12). As of early February 2023, the chance of a Critical or Dry year being declared in the Sacramento Valley watershed is estimated to be less than 25%. (*Id.*, ¶ 14.) Put another way, as of early February 2023 there is a greater than 75% chance that the water year will be classified as Below Normal, Above Normal, or Wet. (*Id.*) Nonetheless, in part because Shasta Reservoir relies heavily on rainfall (not snowmelt), the water supply situation is still considered “uncertain” by water managers. (*See id.* at ¶ 18.) The Court therefore believes it must evaluate the 2023 IOP with the underlying assumption that any of the disputed Shasta IOP provisions might be triggered, though it has incorporated the above information into its analysis where relevant.

ii. 2023 IOP’s Shasta Operations Provisions

The 2023 IOP retains the essential elements of the 2022 IOP related to Shasta Reservoir/Dam operations. If WY 2023 is classified as a Critical, Dry, or Below Normal, the 2023 IOP imposes certain procedures and actions that must be taken to provide cold water conditions for winter run Chinook Salmon egg incubation. (*See* 2023 IOP ¶¶ 12–15.) In addition, the 2023 IOP calls upon Reclamation to set carryover storage volume goals according to water year type. More specifically, under the 2023 IOP:

- Reclamation is again generally committing to meet daily average water temperatures at the Clear Creek gauge on the Sacramento River of 55°F (in critical years) and 54°F (for dry and below normal years) from May 1–October 31. (*Id.* ¶ 15.)

- 1 • Reclamation will use the following “potential” end-of-September Shasta carryover storage
2 “goals” to “inform the development of a final [carryover storage] target”: 1.2–1.8 MAF in
3 a Critical year; 1.8–2.5 MAF in a Dry year; 2.5–3.2 MAF in a Below Normal year. (*Id.* ¶
4 16.)
- 5 • If Reclamation is unable to meet the temperature-related habitat criteria described above
6 for “Critical, Dry, or Below Normal years,” then the Shasta Planning Group, will “agree
7 on temperature management that provides sufficient habitat for the longest period
8 possible.” (*Id.*, ¶ 12.i.b.)³⁴ The 2023 IOP adds certain factors to be considered in
9 developing the TMP, including “available cold water in Shasta Reservoir, forecasted
10 hydrologic and meteorological conditions, estimated winter-run Chinook salmon adult
11 escapement³⁵, and strategies to protect winter-run Chinook salmon egg incubation to
12 maximize balance of juvenile production and life-history diversity.” (*Id.*)
- 13 • In Critical or Dry years only, Reclamation will operate Shasta Reservoir to meet the
14 following priorities in the following order (*id.*, ¶ 12.):
15 (a) public health and safety;³⁶
16 (b) meeting the habitat needs of winter-run chinook salmon by, among other things,
17 not scheduling or make deliveries of “stored water”³⁷ for any reason other than for
18 “public health and safety” until Reclamation approves a temperature management plan
19 that will meet the winter-run habitat criteria (in the form of the temperature targets
20 identified above) and End-of-September storage goals.

22 ³⁴ It is not entirely clear whether the IOP intended for this language to apply only in Critical and Dry years, or
23 whether it is also intended to apply in Below Normal years. The language sits within a broader provision that applies
24 only in Critical or Dry years, but the sentence setting forth the requirement to provide habitat for the “longest period
25 possible” mentions all three year-types. The Court assumes that the reference to Below Normal years in this language
26 was intentional and that the requirement for Reclamation to provide habitat for the longest period possible applies in
27 Below Normal years as well.

28 ³⁵ “Escapement” refers to the number of adults returning to the spawning grounds. (1/24/22 Herbold Decl., *CNRA*
Doc. 252-3.)

³⁶ See *supra* note 23.

³⁷ See *supra* note 22.

(c) “Deliveries of stored water to senior water contractors and Central Valley Project Improvement Act (CVPIA) level 2 refuge supplies after ensuring any such deliveries are consistent with the above priorities.”³⁸

(d) Other deliveries after ensuring any such deliveries are consistent with the above priorities.

- The 2023 IOP also clarifies that the Shasta Planning Group will now include within its scope the analysis of potential effects of Temperature Management on other CVP/SWP streams. (*Id.*, ¶ 13.)

iii. Prior Finding of Reasonableness.

Because some of the discussion that follows builds upon the Court’s prior finding that the 2022 IOP’s Shasta Operations provisions were reasonable, the Court repeats the core of that reasoning here:

First and foremost, the IOP aims to provide much-needed protection for winter-run eggs in the Upper Sacramento River in the coming water year. The court will not repeat the factual material reviewed [in an earlier section of the IOP Order], but instead summarizes its findings as follows: Winter-run experienced high levels of temperature-related egg mortality in 2020 and 2021. Current water storage conditions and ongoing drought risk a third year of significant temperature related egg mortality. This presents a serious concern for the species as a whole in terms of its ability to persist and to recover because of: (a) its three-year life cycle and (b) the fact that it is geographically vulnerable since the only population spawns in the reaches below Shasta Dam. This situation warrants the taking of measures to protect all freshwater life stages of winter run to minimize that risk. As a threshold matter, this issue falls well within the scope of the claims State Plaintiffs have brought against Federal Defendants in this case. The operative

³⁸ This language is a slight departure from the 2022 IOP’s language which referenced “Senior water contractor” deliveries instead of “[d]eliveries of stored water to senior water contractors. (*See* Doc. 406-2 at 7.) Though Federal Defendants and State Plaintiffs claim this is merely a clarification, the State Water Contractors assert this change “leaves priority for releases from Shasta under the IOP subject to more than one interpretation. The primary ambiguity in the language is whether the inflows to Shasta will be stored or would be released without storing (or bypassed). If the Shasta inflows are not stored and are instead bypassed, it is unclear whether the bypassed inflows are subject to the priorities set forth in Paragraph 12, or if they may be released outside of the priority regime. If Reclamation bypasses Shasta inflows and does not subject bypassed inflows to the prioritization under Paragraph 12, there will be less stored water in Shasta overall.” (Doc. 412 at 6.) PCFFA relatedly calls this a “loophole” in the priority system that existed previously but has now been made explicit. (Doc. 416 at 5.) Neither the State Water Contractors nor PCFFA directly address what appears to be Reclamation’s undisputed explanation for this “loophole”: “Reclamation cannot divert all inflow to storage during the spring months, as doing so may conflict with the rule of priorities under California state law.” (*See* Doc. 379 at 3.) Accordingly, it does not appear to be a loophole at all. Critically, no party suggests a better way to describe the volume of water over which Reclamation has control.

1 complaint in CNRA specifically alleges that the Proposed Action as
2 approved by the 2019 NMFS BiOp degrades conditions for listed
3 species impacted by Shasta Dam operations and fails to require
4 appropriate cold water pool operations, including by eliminating
5 carryover storage requirements. (*See CNRA FAC*, ¶¶ 80–81, 93,
6 104.)

7 Substantively, the IOP takes balanced and reasonable steps toward
8 addressing the risks identified above in several interrelated ways.
9 First, the IOP sets forth temperature targets for winter run
10 incubating eggs that are (if they can be maintained) more protective
11 and more biologically justifiable than those that would govern
12 under the dry year (Tier 3 and Tier 4) scenarios of the 2019 NMFS
13 BiOp. Even assuming there is a scientific foundation for the idea
14 that winter-run incubating eggs can withstand temperatures at or
15 above 56°F (with 56°F being allowed in Tier 3 years and no upper
16 limit applied in Tier 4 years under the 2019 NMFS BiOp) for
17 certain periods of time, nothing in the law requires managers to
18 operate right up to that line, which would leave the fish and project
19 operators no room for error. *Cf. San Luis. v. Jewell*, 747 F.3d at 624
20 (finding it was error for the district court to require the agency to
21 explain why it picked one protective measure over another one that
22 would have had less impact on water supply; “FWS need only have
23 adopted a final RPA which complied with the jeopardy standard
24 and which could be implemented by the agency”).

25 Second, the IOP tackles the related problem of attempting to
26 balance the need for suitable instream temperatures this year against
27 the need to ensure sufficient water is carried over as storage into
28 WY 2023. It does so by setting reasonable carryover storage goals
that must be prioritized vis-à-vis consumptive uses of water (other
than for health and safety purposes). As Dr. Herbold cogently
explained, the IOP’s targeted ranges recognize the reality of the
present situation, namely that managers “cannot make water.”
(Herbold Second Decl., ¶ 56.) The court views the IOP’s approach
to carryover storage as a reasonable step in the right direction that,
while not guaranteeing any particular carryover storage outcome,
re-prioritizes carryover storage from a mere “consideration” under
the 2019 NMFS BiOp to a more formalized component of the
temperature planning process.

29 Third, the IOP directly addresses the concern shared by all moving
30 parties that authorizing deliveries of stored water from Shasta early
31 in the year may foreclose the most advantageous temperature
32 management options by delaying deliveries of stored water until a
33 temperature management plan is in place. As noted above, the court
34 finds persuasive the central premise underpinning this requirement:
35 “A principal problem with operations under the [2019 NMFS]
36 BiOp is the incorrect presumption that one can wait to determine
37 how this complex system can be successfully operated to achieve
38 many goals until after some decisions are made that reduce the
availability of options to achieve temperature management goals.”
(Grober Suppl. Decl., ¶ 46.) Put simply, in a situation where very
difficult choices need to be made, Reclamation’s commitment in
the IOP to release no stored water beyond that needed for health

1 and safety purposes until a water management plan is adopted
 2 “ensures that the maximum amount of flexibility will be retained to
 use water wisely.” (Herbold Second Decl., ¶ 37.)

3 Relatedly, the IOP modifies the decision-making guidelines and
 4 structure in ways that reinforce the IOP’s prioritization of winter
 run habitat needs. The guidelines come in the form of a
 5 prioritization system [applicable in Critical and Dry years] that
 gives first priority to public health and safety. Second priority is
 6 given to the habitat needs of winter-run, which are embodied in (a)
 the temperature targets discussed above that are designed to prevent
 7 catastrophic temperature dependent mortality in dryer years and (b)
 the carryover targets that acknowledge the demonstrated need to
 8 plan ahead for subsequent years. Only once a water management
 plan is in place that addresses the second priority for the longest
 9 period possible can the third and fourth priorities be satisfied:
 deliveries to senior water contractors and to “Level 2” wildlife
 10 refuges; and other deliveries. The IOP also modifies the decision-
 making structure to ensure appropriate weight is given to the
 11 second priority by giving the assigned wildlife agency (NMFS)
 final say in the temperature management planning process through
 the six-agency Shasta Planning Group. Defendant Intervenor’s
 12 witness Lee Bergfeld critiques the Group’s role as “duplicative”
 and because it excluded the SRS Contractors. (Bergfeld Decl., ¶¶
 13 47–48.) But the record before the court indicates that the Shasta
 Planning Group structure will coordinate with other parties,
 14 including the SRS Contractors, through other means. In fact,
 Reclamation, a member of the Shasta Planning Group, is actively
 15 doing so now.

16 It is the interrelatedness of all of these elements that undermines
 many of its detractors’ arguments. As all parties appear to
 17 acknowledge, no one can predict today exactly how day-to-day
 operations under the IOP will differ from management that would
 18 have taken place under the 2019 NMFS BiOps. Defendant
 Intervenor use this as an avenue for attacking the IOP, arguing that
 19 its proponents have “not shown the IOP’s temperature targets will
 avoid harm.” (CNRA Doc. No. 233 at 26 (emphasis added).) But
 20 requiring in advance a definitive demonstration of how the IOP will
 function in practice throughout the coming water year would
 21 effectively preclude the very thing that makes the most (and
 perhaps only) sense here, namely, conserving as much water as
 22 possible (without endangering human health and safety) until
 sufficient information is available to generate a temperature
 23 management plan. Ultimately, by calling for early season delivery
 delays, the IOP provides managers flexibility in meeting the habitat
 24 needs while also increasing the likelihood that they will succeed in
 doing so by delaying deliveries until a temperature management
 25 plan is in place.

26 (IOP Order at 84–87.)

27 iv. IOP Proponents’ Justifications for a Renewed Finding of
 28 Reasonableness

1 The moving parties provide two primary justifications for a renewed finding that the
 2 IOP's Shasta provisions are fair and reasonable. First, given that the Court analyzed materially
 3 indistinguishable versions of these provisions in the IOP Order and found them to be fair and
 4 reasonable, the proponents of the IOP argue that the logic of the Court's prior order should still
 5 hold. (Doc. 406 at 11 (citing IOP Order at 83–105).) Second, Federal Defendants and State
 6 Plaintiffs argue that the IOP “functioned well both operationally and biologically and has met its
 7 intended function by establishing a prioritization structure for operational and species needs, a
 8 management process to execute that structure, and ensuring that the prioritization structure was
 9 implemented.” (*Id.* at 12.) The Court's prior reasoning regarding the IOP speaks for itself and is
 10 incorporated herein by reference. The Court focuses here on the arguments related to the IOP's
 11 performance in 2022.

12 First, the proponents of the 2023 IOP indicate that the 2022 IOP resulted in better
 13 coordination among the respective agencies. (9/30/22 Conant Decl., ¶ 8; 11/21/22 Sommer Decl.,
 14 ¶ 10.b (“In my opinion, the agencies have rarely been so well-coordinated in combining their
 15 respective expertise in a common operations plan”)³⁹.) No party appears to question this.

16 Second, the proponents of the 2023 IOP describe in detail how temperature management
 17 planning and implementation proceeded in 2022 under the 2022 IOP. To begin, Shasta Reservoir
 18 started the temperature management season (May–September) with the second lowest level of
 19 storage in recorded history. (9/30/22 Conant Decl., Doc. 406-3, ¶ 7.) WY 2022 was classified as
 20 “Critical.” (*See* Doc. 417-2 (“2022 Final TMP”), at p. 1; 9/30/22 Marcinkevage Decl., Doc. 406-
 21 4, ¶ 14.) Planning for the WY 2022 temperature management season began in the spring. (9/30/22
 22 Marcinkevage Decl., ¶ 12.) It was recognized during the planning process that operators would be
 23 unable to meet the 55°F target at Clear Creek. (*Id.*, ¶ 15.) Modeling was performed using various
 24 average monthly release scenarios and managers eventually selected a final temperature
 25 management plan, pursuant to which Reclamation planned to maintain temperatures at the

26 ³⁹ PCFFA objects to this portion of Dr. Sommer's Declaration on the ground that this assertion is not “based on
 27 sufficient facts or data,” citing Fed. R. Evid. 702(b), and that Dr. Sommer “lacks personal knowledge” sufficient to
 28 support his assertions on this subject, citing Fed. R. Evid. 602. (Doc. 445 at 10.) The Court disagrees. Dr. Sommer's
 extensive, recent experience in the relevant regulatory arena (*see* 11/21/22 Sommer Decl., ¶¶ 1–8) is sufficient to
 support his assertions. This objection is therefore overruled.

“Highway 44” gauge—a point 4 miles upstream of Clear Creek—as follows:

Month	Highway 44
May	57.6
June	53.0
July	53.5
August	54.1
September	54.2
October	56.5
November	53.7

(2022 Final TMP, at p. 8.) NMFS indicated in a May 4, 2022, communication that it had concluded this plan would provide “sufficient habitat for the longest period possible.” (*See* 11/21/22 Marcinkevage, Decl., Doc. 421, Ex. 1.)

At the time the 2022 TMP was adopted, temperature dependent mortality of winter-run eggs was forecast to be 42–51%, and end-of-September storage was forecast to be 1.14 MAF. (9/30/22 Marcinkevage Decl., ¶ 15.) Actual circumstances outperformed these estimates in some respects. For example, according to an early December declaration, “hindcast”⁴⁰ modeling indicated that temperature dependent mortality was actually only 17%. (11/21/22 Marcinkevage Decl., ¶ 5.) In addition, End-of-September storage turned out to be 1.5 MAF. (9/30/22 Marcinkevage Dec., ¶ 16.) Federal Defendants also point out that during WY 2022 the SRS Contractors reduced their water diversions from the 75% to which they are contractually entitled in dry years,⁴¹ to 18% of contract totals. (*Id.*, ¶ 13.)⁴² As mentioned, the IOP’s proponents tout these results as evidence of the “reasonableness” of the IOP’s approach and therefore as justification for the Court approving the very similar 2023 IOP. (Doc. 406 at 11–14.)

v. SRS Contractors’ Objections to the IOP’s Shasta Provisions

⁴⁰ At different stages of the temperature management planning process, managers use models to “forecast” what they believe temperature dependent mortality will be, given anticipated conditions. Later, managers perform a “hindcast” that incorporates “actual data observed.” (*See* Doc. 369-2 (2020 Seasonal Report for the Shasta Cold Water Pool Management) at p. 35.)

⁴¹ As mentioned above, the contracts held by the SRS Contractors contain a shortage provision that reduces contracted-for water supplies by 25% in “Shasta Critical Years.” (2019 NMFs BiOp at p. 221.)

⁴² As discussed below, there is considerable dispute over *why* the SRS Contractors reduced their actual diversions in WY 2022.

1 As discussed above, to a certain extent, the SRS Contractors have framed their opposition
2 to the 2023 IOP around an overly stringent standard of decision that presumes the Court must find
3 the IOP to be “necessary.” Though the Court will not apply that standard, some of the arguments
4 raised are nonetheless relevant to the analysis under the proper standard: whether the 2023 IOP is
5 “fair, reasonable and equitable and does not violate the law or public policy.” Of note here, the
6 SRS Contractors advance several types of fact-based challenges to the IOP’s “reasonableness.”
7 First, they present hydrologic information designed to call into question whether circumstances
8 touted as “successes” of the 2022 IOP are in fact traceable to the IOP at all. Second, they present
9 scientific evidence that, from their perspective, demonstrates that the IOP may have made
10 conditions worse, not better, for winter-run in 2022 as compared to conditions that would have
11 existed under the 2019 NMFS BiOp. Finally, they present evidence regarding impacts of the IOP
12 on other species and on agricultural production.

13 Before evaluating these factual arguments, the Court finds it necessary to address a related
14 argument, the resolution of which is important to framing some of the discussion below. The first
15 two factual arguments listed above—the traceability of touted IOP successes to the IOP, and
16 whether implementing the IOP improved conditions vis-à-vis the pre-existing regulatory
17 regime—roughly fall under the umbrella of a broader argument that is woven throughout the
18 SRS Contractors’ briefing. Specifically, they argue—most clearly in their reply brief—that the
19 proponents of the IOP have failed to demonstrate that the 2023 IOP is “consistent with the statute
20 that the judgment was meant to enforce,” namely the ESA. (*See* Doc. 436 at 2.) They claim that to
21 satisfy this burden the proponents of the IOP must “prove that the 2019 NMFS BiOp results in
22 appreciable harm to listed species that the 2023 IOP Extension would eliminate.” (*Id.* (citing 50
23 C.F.R. § 402.02 (defining “jeopardy” under the ESA to mean “reduce appreciably the likelihood
24 of both the survival and recovery of a listed species”).) PCFFA again echoes this argument, albeit
25 with different ultimate goals in mind. (*See* Doc. 416 at 23.)

26 A very similar argument was rejected in the IOP Order. (IOP Order at 67 (rejecting
27 PCFFA’s argument that any injunctive relief entered in an ESA case must “avoid jeopardy”).)
28 The Court summarized its thinking on this subject as follows:

1 [W]hile jeopardy is certainly relevant, the court is not convinced
2 that every injunction imposed in an ESA must demonstrably “avoid
3 jeopardy.” Or, conversely, that a court cannot adopt an injunction
4 unless it demonstrably “avoids jeopardy.” While a court “must act
5 within the bounds of the [applicable] statute[s] and without
6 intruding upon the administrative province,” it “may adjust its relief
7 to the exigencies of the case in accordance with the equitable
8 principles governing judicial action.” *NWF III*, 886 F.3d at 823.

9 (*Id.* at 69.) The IOP Order evaluated whether PCFFA’s proposed injunction was likely to improve
10 conditions for threatened species vis-à-vis the 2019 NMFS BiOp, but that was in part because
11 Water Project managers, “who are in the best position to understand all of the moving parts of the
12 [complex and interconnected Water Projects] and [the] tradeoffs involved,” had not bought into
13 PCFFA’s proposals. (*Id.* at 66.) The IOP’s status as a joint proposal endorsed by the Water
14 Project managers distinguishes it from PCFFA’s proposal.

15 Nonetheless it remains the case that the Court must evaluate whether the IOP is
16 “consistent with the statute that the judgment was meant to enforce.” Yet the SRS Contractors
17 also appear to be conflating two distinct issues: (a) whether the IOP advances the interests of the
18 ESA; and (b) whether the 2019 NMFS BiOp embodies the interests of the ESA. In analyzing the
19 2023 IOP and any competing proposals, the Court is mindful that plaintiffs in these related cases
20 certainly would dispute the latter. In the Notice of Suit letter attached to the First Amended
21 Complaint in *CNRA*, the State Plaintiffs, outline several reasons why they contend the Shasta
22 Operations provisions of the 2019 NMFS BiOps violate the ESA. (*CNRA FAC* at 64–66.) For
23 example, the *CNRA FAC* alleges that the high levels of temperature dependent mortality
24 anticipated (and permitted) under the higher tiers of the 2019 NMFS BiOp “offers essentially no
25 protection to the fish.” (*Id.* at 64.) State Plaintiffs also complain that under the 2019 NMFS BiOp,
26 Reclamation, not NMFS, would have the final word in crafting annual temperature management
27 plans; there is essentially no constraint on how often Reclamation could operate under “Tier 4”
28 which was anticipated to cause 79–81 percent temperature dependent mortality; and nothing
mandates interventional protection measures in dry years. (*Id.*) State Plaintiffs also complain that
the 2019 NMFS BiOp based its estimates of how frequently Reclamation anticipated it would
operate under each of the various tiers on a historic data set that did not account for “likely

changes in year-type frequency as a result of climate change.” (*Id.* at 64.)⁴³

As the IOP Order explained, as part of the justification for the voluntary remand of the 2019 NMFS BiOps, Federal Defendants indicated that “drought frequency and severity is increasing” which “has implications on species conditions that were not fully considered in the proposed action that [was] analyzed in the 2019 NMFS [BiOp.]” (IOP Order at 20 (record citation omitted).) Because of this, the Court does not view the 2019 NMFS BiOps, and in particular the Shasta Operational provisions of that document, as the litmus test for consistency with the ESA. Rather, leaving the 2019 NMFS BiOp in place during remand was a necessary to avoid the “enormously disruptive” consequences of “[v]acating the highly complex regulatory regime that has been in place for the past few years . . . including [] numerous aspects of project operations that are not placed at issue by these lawsuits.” (*Id.* at 27.) It is with all of this in mind that the Court turns to the more specific objections raised by the SRS Contractors.

*a) SRS Contractors’ Objections Regarding the Claimed
“Success” of the 2022 IOP*

The proponents of the IOP suggest (directly and indirectly in various ways) that the 2022 IOP contributed to improved temperature conditions for winter-run and/or improved carryover storage going into WY 2023. (*See* Doc. 406 at 12 (arguing that the “approach” set out in the 2022 IOP “resulted in the SRS [Contractors] reducing their water diversions from 75% to 18% of contract totals”).) State Plaintiffs’ expert Les Grober⁴⁴ opines that the 2022 IOP “had the effect of maintaining more water in storage in 2022 than in 2021 so that the water could be used for temperature control for the duration of the temperature control season” and that “improved storage in September 2022 is attributable to both the constraints on release of stored water and the carryover storage provisions of the IOP.” (9/30/22 Grober Decl., Doc. 406-6, ¶ 19.)

The SRS Contractors challenge the extent of any causal relationship between the 2022

⁴³ This is not a comprehensive review of State Plaintiffs’ arguments on the merits, nor does the *CNRA* complaint encompass all of the reasons why PCFFA alleges these provisions are insufficient.

⁴⁴ The Court recognizes that Federal Defendants appear have not adopted Mr. Grober’s opinions as their own, though the reason for this remains unclear. (*See* Doc. 406 at 12 n.1.)

1 IOP and reduced water diversions by the SRS Contractors.⁴⁵ They similarly dispute that 2022
 2 end-of-September storage levels were the result of the IOP. As SRS Contractors' hydrology
 3 expert, Lee Bergfeld, explains, actual inflow into Shasta Reservoir exceeded the forecasted inflow
 4 for each of the six months from April through September 2022. (10/31/22 Bergfeld Decl., ¶ 15 &
 5 Fig. 1.) The total difference in the volume of inflow over this period was approximately 0.2 MAF.
 6 Therefore, according to Bergfeld, "approximately half of the difference between the forecasted
 7 storage of 1.135 MAF and the actual storage of 1.515 MAF is a result of more inflow than the
 8 forecast," which is not the result of the 2022 IOP." (*Id.*) For similar reasons, the actual releases
 9 from Keswick dam were less than originally anticipated in the final TMP, particularly in May and
 10 June, to the tune of approximately 0.07 MAF (or 70,000 AF). (*Id.*, ¶ 17.) This was also the result
 11 of precipitation events in April that contributed to greater-than-expected inflow into Shasta
 12 Reservoir and into streams "tributary to" (i.e., that that feed into) the Sacramento River
 13 downstream of Shasta Dam. (*Id.*) "This tributary flow was available to meet demands for water
 14 downstream of Shasta Dam" allowing managers to release less water from Keswick than planned
 15 in the final TMP. Again, according to Mr. Bergfeld this "is []not a result of the 2022 IOP." (*Id.*)

16 Yet Mr. Bergfeld does not attempt to explain the entire picture. His opinion that increased
 17 natural inflow accounted for "approximately half" of the difference between the forecasted and
 18 actual end-of-September storage begs the question: what accounts for the other half? Grober
 19 likewise attributes only part of the carryover storage gains to the IOP. (*See* 9/30/22 Grober Decl.,
 20 (increased carryover storage is "in part, attributable to the IOP. Hydrology . . . also helped.").)
 21 Having thoroughly reviewed all the relevant declarations, the Court concludes that the record
 22 simply does not permit precise tracing of the impact of the 2022 IOP on temperature management
 23 or carryover storage. Though Mr. Grober's Declaration attempts to do so, he uses largely
 24 anecdotal comparisons between various water years to make his points. (*See generally* 9/30/22
 25 Grober Decl.) While facially compelling, the Court generally agrees that his opinions as presented

26 ⁴⁵ The SRS Contractors do not appear to dispute the related, but not necessarily identical, proposition that something
 27 in 2022 (the specter of implementing the 2022 IOP?) caused some water users (in this case rice farmers) to plan for
 28 reduced deliveries in 2022 by fallowing some of their rice fields. Such fallowing activity forms the underpinnings of
 the SRS Contractors' separate argument that the IOP-driven rice field fallowing harmed the protected giant
 gartersnake. (*See infra* Part V.A.2.b.v.c.)

do not fully account for all the relevant variables. (*See generally* 10/31/22 Chilmakuri Decl., Doc. 412-1.)⁴⁶ Moreover, the record does not detail the extent to which any reduced deliveries (or changes in the timing of those deliveries) were due to voluntary actions by the SRS Contractors. (*See* 1/10/22 Conant Decl., Doc. 326-2, ¶ 12 (discussing then-ongoing efforts to determine if voluntary rescheduling of deliveries by SRS Contractors would be beneficial).)

Nonetheless, the absence of a clear causal link between the IOP's provisions and actual conditions on the ground after a single year of implementation does not surprise the Court in the least. The Court's reasoning approving the 2022 IOP never presumed such proof would be readily available over such a short time horizon.

b) Did the 2022 IOP Do More Harm Than Good?

The SRS Contractors' next suggest that the 2022 IOP's temperature and carryover storage targets may have made conditions *worse* for winter-run in 2022 vis-à-vis conditions that would have prevailed had the terms of the 2019 NMFS BiOps remained in force. First, Mike Deas, a hydrology expert retained by the SRS Contractors, performed modeling designed to compare the management scenario chosen as the final 2022 TMP (i.e., the scenario that was selected after application of the 2022 IOP's procedures)⁴⁷ with several other alternatives based on the 2019 NMFS BiOp's provisios. (*See generally* 10/31/22 Deas Decl., Doc. 413-3, ¶ 5.) Deas modeled the final 2022 TMP as the first scenario. (*Id.*, ¶ 5.) Deas then modeled two alternative scenarios using 56°F as the target management temperature, which the SRS Contractors indicate is akin to operations under "Tier 4" of the management regime set forth in the 2019 NMFS BiOp. (*See* Doc.

⁴⁶ PCFFA argues that NMFS modeling recently concluded that reduced Shasta releases were the primary cause of lower temperature dependent mortality among winter run in 2022. (See Doc. 442 at 7 (citing Doc. 443-5 (Southwest Fisheries Science Center, "Hindcast of factors contributing to Winter-Run Egg TDM change as forecasted in April compared to as observed in October 2022." (November 2022) at 8).) But the cited document simply concludes that "reduced releases" strongly contributed to lower temperature dependent mortality; it does not connect the IOP to those reduced releases.

From Doc. 442 at 7:

NMFS's recent modeling concludes that reduced Shasta releases were the primary cause of the lower winter-run TDM in 2022. Supp. Chisholm Decl., Exh. AD at 8. But nothing in the proposed IOP Extension requires any reduction of SRS Contractor allocations in 2023, rendering hollow Federal Defendants' suggestion that the IOP Extension will similarly perform better than predicted

⁴⁷ The temperature targets of the final 2022 TMP, which used a temperature compliance point at Highway 44, are presented in the table included above at Part V.A.2.b.iv.

414 at 6; *see also* 2022 Final TMP at p. 2 (stating that conservative February 2022 forecasts indicated 2022 would be a “Tier 4” year).) One alternative modeled by Deas (“scenario two”) set 56°F as the temperature target at the same compliance point as the final 2022 TMP (Highway 44); while another (“scenario three”) set 56°F as the temperature target at the compliance point at Clear Creek, approximately five miles downstream of Highway 44. (10/31/22 Deas Decl., ¶ 5) Deas’ modeling indicated that under scenario two, Water Project managers would have been able to “maintain temperature control”⁴⁸ for seven weeks longer than under scenario one (i.e., the operational scenario managers chose to implement in the final TMP in 2022). (10/31/22 Deas Decl., ¶ 5.) Deas’ modeling further indicated that scenario three would have enabled managers to maintain temperature control for four weeks longer and over an additional five miles of habitat than scenario one. (*Id.*, ¶ 5.) Though this appears impactful at first glance, but the SRS Contractors’ papers do not explain how either scenario two or scenario three might have impacted winter-run survival in biological terms. (*See* Doc. 414 at 6–7.) In fact, similar kinds of alternative scenarios were considered and rejected in the 2022 Final TMP because they would have resulted in unacceptably high temperature dependent mortality (above 70%) whereas keeping temperatures lower during the earlier part of the season was anticipated to result in lower TDM even though it might mean higher fall temperatures. (2022 Final TMP at p. 7–8.)⁴⁹

The SRS Contractors relatedly attempt to take aim at what they view to be a “myopic” focus on temperatures to the exclusion of other important factors. (*See* Doc. 436 at 3.) Though it is true that temperature dependent mortality (i.e., the direct and most immediate effects of

⁴⁸ Mr. Deas defined “loss of temperature control” as when operations at the temperature control device on Shasta Dam “transition to the side gates alone (and all other gates in the TCD are closed and both side gates are open), at which point typical TCD operations no longer provide a measure of operational control of Shasta Dam release temperatures.” (10/31/22 Deas Decl., ¶ 5.)

⁴⁹ The Court acknowledges that the SRS Contractors’ argument is subtler than the Court’s blunt attempt to describe it here. Among other things, they appear to be attempting to undermine any effort by the IOP’s proponents to take credit for the apparent biological “success” of keeping temperature dependent mortality to only 17% because Water Project managers lost control of temperatures after August 22, 2022. (*See* Doc. 414 at 6 (citing 10/31/22 Bergfeld Decl., at ¶ 10).) This is understandable, as it seems illogical to attribute any temperature-related successes that post-date August 22, 2022, to the IOP if Water Project managers had little to no ability to influence those temperatures. The problem is that the record does not obviously lend itself to parsing the overall biological result—actual temperature dependent mortality of only 17%—on a monthly or weekly basis, so it is very difficult to isolate the biological impact of the weeks where temperature control was maintained from those when it was not.

temperature on egg survival) appears to have been kept to 17% in 2022, it is undisputed that mortality at other young life stages of winter-run was extremely high in 2022. According to SRS Contractors' fish biology expert Bradley Cavallo, "2022 will have the lowest level of winter-run fry production ever observed on the Sacramento River," (10/31/22 Cavallo Decl., Doc. 414-2, ¶ 11), with initial estimates at less than 2%. (12/22/23 Cavallo Decl., Doc. 436-1, ¶ 15.)⁵⁰

Cavallo opines in detail about how various factors may have contributed to poor winter-run survival in 2022. Among other things, it is undisputed that in recent years, thiamine deficiency has been identified as a source of mortality affecting winter-run eggs and fry. (*Id.*, ¶ 29.) Though the impact of thiamine deficiency is not well studied, Cavallo assumed (based upon NMFS data) that thiamine deficiency was responsible for approximately one half of egg/fry mortality in 2022. (*Id.*, ¶ 29.) Cavallo still considers this an "incomplete explanation for poor production of juvenile winter-run" in 2022. (*Id.*)

Cavallo mentions several other factors that can impact survival but emphasizes one other in-river factor as a potentially significant source of mortality: flow. (*Id.*, ¶¶ 27, 30–31.) As he explains:

River flows can influence the success and survival of winter-run Chinook salmon in a variety of ways.

- Adequate intergravel flows are critical to incubation success of Chinook salmon. Low river flows can reduce intergravel flow, contributing to dissolved oxygen limitation and reduced egg incubation success.
- River flows can influence the proportion of juveniles that leave the spawning areas as fry relative to smolts (Zeug et al. 2014; Vogel 2017), which in turn influences whether or not juveniles are able to find and utilize available rearing habitats.
- Lower flows can expose juveniles to elevated risk of predation during both rearing and downstream migration. This mechanism

⁵⁰ Managers use traps operated at Red Bluff Diversion Dam ("RBDD") downstream of Keswick on the Sacramento River to estimate the number of winter-run juvenile salmon "produced" in river each year. (*Id.*) According to his calculations based upon the number of spawning adults, the 17% temperature dependent mortality, and other factors, including presumed "background mortality," somewhere between 2.3 and 2.9 million winter-run fry should have arrived at RBDD in 2022. (*Id.*, ¶ 15.) Yet, as of late October 2022, when in an average year approximately two-thirds of the entire population should have passed downstream of RBDD, only 165,000 fry were estimated to have made that journey. (*Id.*, ¶ 11.) Even if the high range of that estimate is doubled, the fry production in 2022 will be comparable to the poor survival observed in the 2014 and 2015 drought years. (*Id.*; see also 12/22/22 Cavallo Decl., ¶ 4 (confirming that trend did not improve over time).)

has been widely studied and affirmed across Central Valley rivers for both fry and larger juvenile Chinook salmon (e.g., Zeug et al. 2014; Michel et al. 2015; Perry et al. 2018).

(*Id.*) Overall, Mr. Cavallo’s opines that the current management focus on temperature—to the detriment of flow—is inappropriate. (*See* 10/31/22 Cavallo Decl. at 4.) He opines, for example, that “[a]ny assertion that 56°F would be catastrophic for winter-run Chinook is refuted by the fact that managing to 56°F (and at times slightly higher) in 2014 and 2015 led to substantially better egg-to-fry survival than was achieved in 2022 when flows were drastically reduced to achieve 55°F.” (12/22/22 Cavallo Decl., ¶ 14.) This assertion is unpersuasive for several reasons. First, it seems misleading to assert that egg-to-fry mortality was “substantially” better in 2014 and 2015 than in 2022, when the egg-to-fry survival in 2014 and 2015 was 6% and 4.2-4.5% respectively. 3/5/20 Rosenfeld Decl., ¶¶ 171, 174.) Though arguably better than the 2% estimates given for 2022, all of those numbers are unusually low when compared to expected/average survival rates. (*Id.*) Second, like many other assertions from many witnesses, the comparison of 2014/2015 and 2022 appears to be a “back of the envelope calculation” that does not control for the numerous other factors at play. Nonetheless, flow is an expressed concern of relevant agency groups. For example, the October 13, 2022, minutes of the Sacramento River Temperature Task Group, an exhibit offered by PCFFA, indicates that turbidity and low flows may explain the fact that “background mortality could be a lot higher” in 2022. (Doc. 417-14 at 7.)⁵¹

⁵¹ Mr. Cavallo proposes in his declarations various “non-operational conservation measures” that, if implemented, could improve winter-run survival. (*See* 12/22/22 Cavallo Decl. ¶¶ 18–26.) For example, he proposes a program to capture and treat wild female winter run for thiamine deficiency. (*See* 10/31/22 Cavallo Decl., ¶ 36.) The SRS Contractors criticize the 2023 IOP for not implementing such a program. (*See* Doc. 414 at 9.) Federal Defendants’ declarant indicates, however, that no mechanism to implement such a program currently exists. (*See* 11/21/22 Marcinkevage Decl., ¶ 7.) Federal Defendants indicate that “NMFS will work with other fish agencies to evaluate and implement options to treat in-river spawners, which, as listed species, are not typically handled more than is absolutely necessary.” (*Id.*) Cavallo appears to admit that the facilities to implement his suggested program do not currently exist by indicating that the traps used to collect natural origin winter-run for hatchery broodstock are insufficient. (12/22/22 Cavallo Decl., ¶ 23.) Cavallo suggests that the 2023 IOP’s “singular, intensive focus on water temperature management . . . encouraged agencies to treat other urgent conservation needs as optional in 2022.” (*Id.* at ¶ 17.) This is ultimately a dispute over priorities that is beyond the scope of these motions. The Court agrees with Federal Defendants that the 2023 IOP was designed to “targeted changes to CVP operations and the agency process under the 2019 [BiOps],” and does not “preclude the agencies from taking other conservation actions for winter-run and other ESA-listed species.” (Doc. 423 at 6.) That the IOP does not explicitly incorporate these other actions does not render it unreasonable; nor does the fact that some of those other actions are being taken render it reasonable.

1 In response, Federal Defendants’ and State Plaintiffs’ generally attempt to brush aside
 2 Cavallo’s concerns by pointing out that the Shasta Planning Group met regularly under the IOP in
 3 2022 and addressed various components of operations, including options that would have
 4 impacted flows. (*Id.* at ¶ 6.) In addition, State Plaintiff’s expert witness Ted Sommer opines that
 5 even though flow is “one of the more controllable factors along the Sacramento River corridor,” it
 6 “can only partially be controlled by water project operations because of influences of other water
 7 diversions and the over-riding effect of the current mega-drought.” (11/21/22 Sommer Decl.,
 8 CNRA Doc. 299-1, ¶ 29.) NMFS’s Assistant Regional Administrator for the California Central
 9 Valley Office, Cathy Marcinkevage, acknowledges that “ESA-listed salmon are struggling
 10 throughout the Central Valley as a result of multiple factors, including prolonged drought
 11 conditions and increased impacts of thiamine deficiency.” (11/21/22 Marcinkevage Decl., ¶ 5.)
 12 She continues:

13 In all years, there are many factors that contribute to early life stage
 14 mortality, and this year’s low egg-to-fry survival is not wholly
 15 dependent on temperature impacts and therefore not wholly
 16 dependent on implementation of the WY 2022 IOP. However,
 17 preliminary work from the NMFS Southwest Fisheries Science
 18 Center (SWFSC) that has been completed since the end of the
 19 temperature management season shows that the temperature and
 20 outflow operations that were implemented in 2022 reduced egg
 21 temperature dependent mortality by more than 70%. That is, the
 hindcasted TDM from actual operations and conditions was 17%,
 while it would have been upwards of 90% without these operations.
 . . . This year’s TDM, in a critically dry year, was notably lower than
 the hindcasted TDM for previous critically dry years (75%, 86%,
 77%, and 45% in 2021, 2015, 2014, and 2008, respectively). This
 mortality factor – one of the few which can be controlled – was
 managed this year.

22 (*Id.*) What is clear is that Federal Defendants have taken the position that temperature in winter-
 23 run spawning locations is the most important factor that can be controlled. (*See* Doc. 423 at 7.)⁵²
 24 This may, ultimately, be unwise, but the present record does not demonstrate as much. No party

25 ⁵² As the above paragraph exemplifies, TDM estimates, and how those estimates might change under various
 26 temperature and operational scenarios, are a central focus of managers. The Court acknowledges that the scientific
 27 model developed by Martin et al. that is used to generate the TDM estimates—or more specifically the way the
 28 model’s outputs are used in making management decisions—is fiercely criticized by Mr. Cavallo. (*See* 12/22/22
 Cavallo Decl. ¶ 6.) Yet that critique does not appear to be the prevailing position of the scientific community, which
 finds the model useful for many purposes. (*See* 1/24/22 Herbold Decl., CNRA Doc. 252-3, ¶¶ 10–17; 11/21/22
 Sommer Decl., ¶¶ 42–43.)

has been able to quantify the impact of flow conditions in 2022 on juvenile survival and no party has suggested a realistic way to improve flow conditions other than to simply return to the approach under the 2019 NMFS BiOp, an approach that would backtrack on the modestly more stringent temperature controls imposed by the 2022 IOP. The Court previously reviewed the science on the importance of temperature and the management reasons why the IOP's specific temperature targets (as opposed to any other proposal) were the most reasonable to impose as injunctive relief. (*See* IOP Order at 52–53.) The SRS Contractors' presentation in the latest round of briefing does not motivate the Court to change its findings in that regard.

Perhaps most importantly the Court does not believe it is appropriate to allow the intricacies discussed above to cloud the bigger picture. By isolating one or two of the IOP's provisions and testing those against the parallel provisions of the 2019 NMFS BiOp, the SRS Contractors are ignoring how the IOP was intended to operate overall. At the risk of being overly repetitious, it was the “interrelatedness” of all of the 2022 IOP's elements that the Court found “undermines many of its detractors' arguments.” (IOP Order at 87.)

[T]he very thing that makes the most . . . sense here [is] conserving as much water as possible (without endangering human health and safety) until sufficient information is available to generate a temperature management plan. Ultimately, by calling for early season delivery delays, the IOP provides managers flexibility in meeting the habitat needs while also increasing the likelihood that they will succeed in doing so by delaying deliveries until a temperature management plan is in place.

(*Id.*) From a macro perspective, the Court's prior finding that the IOP is “consistent with the statute that the judgment was meant to enforce,” remains firmly rooted and correct. (*See supra* at Part V.A.2.b.iii.)

c) *SRS Contractor Objections Re Impacts to Other Species*

As recognized in the IOP, in the consent decree jurisprudence, applied here by analogy to an agreement in the form of a stipulated injunction, it is “important for the district court to be fully informed regarding the costs and benefits of the decree.” *Chevron*, 380 F. Supp. 2d at 1113 (citing *Montrose Chem. Corp.*, 50 F.3d at 746). As part of the broader consideration of costs and benefits, it is appropriate to consider whether equitable relief would undermine one species for

1 the benefit of another. *See Idaho Rivers United v. U.S. Army Corps of Eng'rs*, 156 F. Supp. 3d
 2 1252, 1266–67 (W.D. Wash. 2015) (“It makes little sense to issue a preliminary injunction to
 3 protect against alleged harm to Pacific lamprey when the result will undermine . . . parameters
 4 recommended by NMFS that are designed to benefit other listed and endangered species.”). Prior
 5 to the Court’s initial approval of the 2022 IOP, Defendant Intervenor raised various objections
 6 concerning the impacts of the IOP on other species. Though the Court found those to be valid
 7 concerns, it concluded that the record was speculative as to the nature and extent of any harm that
 8 might befall other species as a result of the implementation of the 2022 IOP; as a result, those
 9 concerns did not “overwhelm the immediate need for action, well established in the present
 10 record, to ensure sufficiently cold temperatures to protect winter-run incubating eggs in the Upper
 11 Sacramento River.” (IOP Order at 110.) The Court indicated that it would “expect more nuanced
 12 consideration of these issues in any renewed injunctive relief proposal.” (*Id.*)

13 This time around, the SRS Contractors present more specific evidence regarding asserted
 14 impacts of the IOP on the state and federally-listed⁵³ giant gartersnake. It appears to be
 15 undisputed that the giant gartersnake relies heavily on flooded rice acreage for habitat and that the
 16 unavailability of this habitat in April and May can dramatically reduce the survival and
 17 reproduction of those snakes. (*See* 10/31/22 Hansen Decl., Doc. 414-5, ¶ 6.) It is also undisputed
 18 that in 2022, farmers within the SRS Contractors’ service areas fallowed approximately 83
 19 percent of the rice acreage that had been in production in 2021, another critically dry year. (*Id.*, ¶
 20 3.)⁵⁴ According to Eric Hansen, a giant gartersnake biology expert, this “land fallowing and
 21 corresponding dewatering of 156,000 acres of important riceland habitat during [a] critical part of
 22 the species’ active season (and thereafter), negatively affect[ed] feeding, reproduction, and
 23

24 ⁵³ The giant gartersnake (*Thamnophis gigas*) is listed as threatened under the ESA. *AquAlliance v. U.S. Bureau of*
 25 *Reclamation*, 287 F. Supp. 3d 969, 1064 (E.D. Cal. 2018). It is also listed as threatened under CESA. (*See* California
 26 Dept. of Fish and Wildlife, State and Federally Listed and Endangered and Threatened Animals List, available at
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline> (last visited February 16, 2023).)

27 ⁵⁴ State Plaintiffs object generally to Mr. Hansen’s declaration as “irrelevant” (or possibly inadmissible under
 28 *Daubert*) because it attributes giant gartersnake impacts to both hydrologic conditions and the 2022 IOP in a
 “muddled” manner. (*CNRA*, Doc. 300 at 3.) The Court finds this objection inapposite under the circumstances,
 because it does not rely on Mr. Hansen’s declaration to draw connections between the IOP and any impacts to giant
 gartersnake. For the same reason, the Court finds PCFFA’s similar objections inapposite. (Doc. 445 at 13.)

1 survival throughout half the species’ ostensible range in the Sacramento Valley.” (*Id.*, ¶ 6.) In
 2 general, “recent drought conditions have undeniably placed pressure on the species throughout its
 3 range, with the resulting reduction and temporary loss of aquatic habitat associated with severe
 4 population reductions, skewed demographic rates, and extirpations of genetically distinct
 5 populations.” (*Id.*, ¶ 7.) Mr. Hanson opines that “[a]dditional [habitat] fragmentation, population
 6 reductions and potential loss of genetic variation on a scale associated with the spatial extent of
 7 fallowing observed in the Sacramento Valley in 2022 could significantly reduce genetic variation.
 8 This, combined with losses elsewhere, would threaten the long-term viability of the species as a
 9 whole.” (*Id.*)

10 Somewhat less clear, however, is the relationship of the 2022 IOP to the land fallowing in
 11 the Sacramento Valley. Federal Defendants and State Plaintiffs point out that according to Joel
 12 Kimmelshue, an agricultural scientist with expertise in land use patterns, there was a
 13 disproportionate, negative impact on planted rice acreage in 2022 within the area impacted by the
 14 IOP, namely lands within areas covered by the SRS Contracts. (10/31/22 Kimmelshue Decl.,
 15 Doc. 414-4, ¶ 7). Specifically, Kimmelshue indicated that in 190,740 acres of rice was planted
 16 within SRS Contractor service areas in 2022, while 34,856 acres was planted in 2022, for a loss
 17 of 155,884 acres; in contrast, 214,543 acres of rice was planted outside SRS Contractor service
 18 areas in 2021, and 217,776 acres were planted in 2022, for a *gain* of 3,243 acres. (*Id.*)⁵⁵ This is
 19 suggestive of a causal relationship between the IOP and the fallowing of rice acreage, but by no
 20 means is it definitive. For one thing, the SRS Contractors elsewhere attempt to downplay the
 21 relationship between the 2022 IOP and reduced water deliveries within the SRS Contractors’
 22

23 ⁵⁵ The State Plaintiffs raise two challenges to Dr. Kimmelshue’s declaration. They suggest that he is not qualified to
 24 offer opinions on the operation of the Central Valley project or the causes of any reduction in the amount of water
 25 supply. (CNRA Doc. 300 at 3–4.) To the extent Dr. Kimmelshue tries to do either, the Court has not relied on any
 26 such opinions. State Plaintiffs also object on relevance grounds that he “provides no evidence for—much less any
 27 quantification of” any opinion connecting the IOP to reduced water supplies. (*Id.* at 3.) For similar reasons, the Court
 28 does not believe it needs to address PCFFA’s objection to the Court’s reliance on Dr. Kimmelshue’s Declaration
 insofar as it makes any assertions as to the cause of reduced rice acreage. (*See* Doc. 445 at 13.) The Court relies
 herein on Dr. Kimmelshue’s evidence in the relatively limited way it is presented in his declaration: to demonstrate
 what actually happened to rice production in 2022 both within and without the SRS Contractors’ service areas. His
 declaration does not and cannot draw direct connections between the IOP and those reductions, but it suggests
 circumstantially some relationship. The above objections are therefore overruled insofar as they apply to the material
 cited in this order.

1 service areas. (*See* 10/31/22 Bergfeld Decl., ¶ 17 (“The same precipitation events in April that
2 contributed to actual inflow exceeding forecasted inflow into Shasta Lake resulted in run off into
3 streams tributary to the Sacramento River downstream of Shasta Dam. This tributary flow was
4 available to meet demands for water downstream of Shasta Dam with less release than planned in
5 the final TMP.”).) Although these positions are not completely incompatible—as planting
6 decisions must be made in advance based upon anticipated conditions (*see* Doc. 448 at 4)—it
7 remains unclear how much of the land fallowing was caused by the 2022 IOP.

8 The Court notes that the only obvious, proactive attempt by the moving parties to address
9 the Court’s specific request in the IOP Order for a “more nuanced consideration of these issues”
10 in the 2023 IOP is the inclusion of additional language that expands the scope of issues that the
11 IOP-created Shasta Planning Group will address to include “any potential effects of the
12 operations described in Paragraph 12 [Shasta Operations] on other CVP/SWP streams.” (2023
13 IOP, ¶ 12.i.b.) Though this may not be the most direct way to address the Court’s request for
14 additional information on species-versus-species tradeoffs, the Court understands why the moving
15 parties would defer consideration of these issues to the group of decision-makers who would
16 likely be best positioned to evaluate any potential impacts in light of actual conditions on the
17 ground.

18 Overall, the Court still finds that the concerns for other species do not inherently
19 “overwhelm the immediate need for action, well established in the present record, to ensure
20 sufficiently cold temperatures to protect winter-run incubating eggs in the Upper Sacramento
21 River.” (*See* IOP Order at 110.) The Shasta Planning Group is now empowered and directed to
22 consider these issues when evaluating options for a TMP. This is a reasonable approach,
23 particularly given the more favorable water supply situation that appears to be developing for WY
24 2023. The rice fallowing seen in the Sacramento Valley 2022 was associated with the Critical
25 water year designation for that region in 2022. This year, such a designation appears unlikely.
26 (*See* 2/20/13 Conant Decl., ¶ 7 & Attachment (indicating less than 10% chance that WY 2023
27 will be in the “Critical” classification for the Sacramento Valley).) This gives the Court additional
28 confidence that the 2023 IOP’s plan to have the Shasta Planning Group attempt to balance these

1 issues in the first instance is appropriate.

2 *d) Economic Impacts*

3 The SRS Contractors have again revisited the subject of water supply and economic
4 tradeoffs associated with the IOP. As the Court previously explained, “Congress removed from
5 the courts their traditional equitable discretion in injunction proceedings of balancing the parties’
6 competing interests.” *PCFFA v. Gutierrez*, 606 F. Supp. 2d at 1204; see also *NWF I*, 422 F.3d at
7 793–94 (“Congress has determined that under the ESA the balance of hardships always tips
8 sharply in favor of endangered or threatened species.”). In practice, this results in a prohibition of
9 the balancing of economic harms against the Congressionally determined public interest in
10 preserving endangered species. *PCFFA v. Gutierrez*, 606 F. Supp. 2d at 1204. A similar concept
11 has been applied in the context of consent decree approval. *Turtle Island*, 834 F. Supp. 2d at 1018
12 (noting that if intervenor fishing interests ultimately had access to their fishery limited by the
13 terms of the consent decree “this result would be consistent with the goals of the ESA and in the
14 public’s interest,” because under *Hill*, 437 U.S. at 184, “[t]he plain intent of Congress in enacting
15 [the ESA] was to halt and reverse the trend toward species extinction, whatever the cost”).

16 Declarations have again been filed, by the SRS Contractors and others, containing
17 evidence of “pure economic harm” caused by water supply shortages. (*See, e.g.*, Doc. 439 (Water
18 Resources Manager of Kern County Water Authority describing, among other things, economic
19 impacts of water supply shortages).) As the Ninth Circuit has noted, ESA restrictions have the
20 potential to harm “millions of acres of land and tens of millions of people,” *San Luis & Delta-*
21 *Mendota Water Auth.*, 747 F.3d at 605, who rely on water from the CVP-SWP. As the IOP Order
22 indicated: “This is well established and understood.” (IOP Order at 108 n. 68.) Again, other
23 declarations detail related issues that are not purely economic, such as alleged harm to the food
24 supply and harm to underprivileged communities, schools and businesses that may result from
25 water delivery restrictions. The Court is permitted to consider these the societal harms. *PCFFA v.*
26 *Gutierrez*, 606 F. Supp. 2d at 1213–14 (suggesting court may consider evidence regarding the
27 health and safety effects of secondary adverse impacts such as land subsidence, land fallowing
28 leading to air quality impacts, and community dislocations arising from job losses). The Court has

1 read and considered all of declarations addressing these subjects. As the IOP Order indicated,
 2 “given the statutory priority given to endangered species, these concerns can only underscore the
 3 court’s obligation to ensure that the measures it imposes are narrowly tailored to address
 4 anticipated harms.” (IOP Order at 109.) The Court has nonetheless taken this information into
 5 consideration in reaching its decision here and is again one reason why the Court finds the IOP’s
 6 provisions to be more appropriate than the alternatives offered by PCFFA.

7 ///

8 *e) Senior Water Rights/State Water Law*

9 As was the case in connection with the 2022 IOP, the SRS Contractors reiterate their
 10 concern that the 2023 IOP “furthers an interpretation of the Sacramento River Settlement
 11 Contracts that is unlawful under state and federal law and operates to reverse the water rights
 12 priority system.” (Doc. 414 at 13.) The Court again declines to engage in this hypothetical debate
 13 because it does not read the IOP as giving Reclamation permission to breach its contractual
 14 obligations. (*See* IOP Order at 93 (“The court is in no position to micromanage exactly how
 15 Reclamation intends to make good on its commitments under the IOP while also abiding by its
 16 contractual obligations. While the can cannot be kicked down the road indefinitely, the IOP
 17 presents a reasonable interim approach to the serious challenge presented, namely, that the SRS
 18 Contracts make it exceedingly and increasingly difficult for Reclamation to operate Shasta Dam
 19 in a manner that is sufficiently protective of winter-run.”).) Whether and to what extent
 20 Reclamation can or will work around, bend, breach, or seek to renegotiate those contracts is not
 21 within the scope of the present dispute.

22 The same goes for the SRS Contractors’ argument that the 2023 IOP “conflicts with the
 23 rule of priority.” (*Id.* at 14.) As this Court has made plain in the past, the nature and extent of the
 24 SRS Contractors’ senior rights vis-à-vis Reclamation’s water rights has never been adjudicated;
 25 rather, it has been expressed as a “contractual priority” embodied in the SRS Contracts
 26 themselves. *NRDC v. Kempthorne*, No. 1:05-cv-01207-LJO-GSA, 2015 WL 3750305, at *10
 27 (E.D. Cal. June 15, 2015) (describing the “monstrous lawsuit” that would result from an attempt
 28 to definitively adjudicate the priority of the SRS Contractors’ water rights vis-à-vis the Bureau's

rights to divert water for the CVP). Given the Court’s interpretation of the IOP, the Court sees absolutely no reason to import into the current, relatively narrow yet nonetheless time-consuming dispute an issue of vastly greater scope and magnitude. For the same reason, the Court declines to accept State Plaintiffs’ invitation to carve out exceptions to the SRS Contractors’ water rights under California’s public trust doctrine. (Doc. 299 at 10–11.)

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*f) SRS Contractors’ Request for “Procedural Protections”
and Motion to Strike that Request*

In their reply brief, the SRS Contractors argue for the first time that “if the Court finds the [2023] IOP meets the applicable standard, the Court should impose procedural modifications designed to minimize adverse impacts in the Sacramento Valley.” (Doc. 436.) They attach a redline of the proposed interim relief order drafted by the Federal Defendants and State Plaintiffs that adds language to the procedures related to the operation of the Shasta Planning Group that would require that the SRS Contractors “be afforded a significant and meaningful role in the operational guidance and risk assessment deliberations by the Shasta Planning Group.” (Doc. 43 at 16.) Federal Defendants move to strike this request as an “untimely proposed [form of] alternative relief.” (Doc. 450.) As Federal Defendants point out, the Court’s October 31, 2022, scheduling order indicated that “any party objecting to the proposed interim operations plan, objecting to the requested stay, and/or making alternative requests for relief may file a brief of up to 25 pages.” (Doc. 407 at 2.) The SRS Contractors rejoin that their proposed procedural modifications are “consistent with the Sacramento River Intervenors’ position throughout this briefing—that Reclamation should operate Shasta under the 2019 BiOp during reinitiated consultation and afford the Settlement Contractors more input.” (Doc. 451 at 3 (citing *Grange Inss Assoc. v. Sran*, 184 F. Supp. 3d 799, 819 (E.D. Cal. 2016) (denying a motion to strike where arguments raised in the reply brief were consistent with previous argument and responded to arguments made in opposition briefs).)

The Court is not persuaded by the SRS Contractors’ response. As Federal Defendants

point out, the plaintiff in *Grange* was “merely responding to the[] arguments advanced by [the defendant]” in a prior brief by pointing to a potentially applicable exclusion in the relevant insurance contract; thus the response was not subject to being stricken. The present circumstances are distinguishable. Though the new language the SRS Contractors propose to add to the IOP certainly is “consistent” with their prior, generic positions, it is nonetheless a specific request for alternative relief that should have been presented in accordance with the scheduling order’s commands, so that all parties could have been given time to respond to the specific proposed language. The record in this matter is complex and voluminous enough without a party attempting to move the ball once again as the clock is winding down. The motion to strike is **GRANTED**; this alternative request for relief will not be considered.

vi. PCFFA’s Objections and Requested Modifications Related to Shasta Operations

a) *PCFFA’s Renewed Request to Modify IOP’s Temperature and Carryover Storage Provisions*

As was the case in the briefing leading up to approval of the 2022 IOP, PCFFA again argues that the temperature targets and carryover storage goals in the 2023 IOP are insufficiently protective. PCFFA pushes for slightly lower temperature targets of 54.5°F (as opposed to 55°F) in Critical years; 53.5°F (as opposed to 54°F) in Dry and Below Normal years. Relatedly, PCFFA pushes for higher carryover storage goals of 1.9 MAF (as opposed to 1.2–1.9 MAF) in Critical years; 2.2 MAF (instead of 1.8–2.5 MAF in Dry years); and maintains the IOPs targets of 2.5–3.2 MAF in Below Normal years. (*See* Doc. 416 at 24–25.) PCFFA also pushes for certain procedural changes to the IOP’s prioritization system.

In the IOP Order, the Court rejected PCFFA’s request to impose lower temperature targets as follows:

PCFFA contends that the IOP’s provisions related to Shasta do not go far enough in several respects. First, PCFFA argues that the IOP adopts targets that are biologically unjustifiable. (*See generally* Doc. No. 638.) With regard to the temperature targets to protect winter-run incubating eggs, as the court has already acknowledged, the targets advanced by PCFFA are biologically justified and would help ensure (if met) very low temperature dependent mortality.

Even the IOP's advocates acknowledge that some (possibly quite significant) temperature related mortality may occur at the temperature targets adopted in the IOP. (See Brown Decl., ¶ 32; Tr. 42.) But, it is well-established that there are tradeoffs in dry years between (a) targeting temperatures to a particular level and (b) the length of time that temperature target can be maintained, as well as preserving water storage to ensure effective temperature management in the following year. (See Doc. No. 203 at 28 (June 24, 2020 Order discussing these tradeoffs apparent from the record then before the court); 2019 NMFS BiOp at p. 259 (explaining "operational tradeoffs between maintaining high flows for the fall temperature management versus reducing flows to conserve storage for the following year's temperature management").)

Because of these tradeoffs, the IOP takes a middle-of-the road approach, setting targets that are likely to be more protective than those under the 2019 NMFS BiOp, see Brown Decl., ¶¶ 32 (explaining that models indicate mortality would be 88-100% if temperatures are held at or above 56°F [under the 2019 NMFS BiOp], whereas mortality may be lower 34-74% under the IOP), but which are somewhat more likely to be achievable than those in the PCFFA PI. Crucially, while it is not yet clear for how long managers can achieve the IOP's temperature targets this year, Reclamation is at least "committing" to meeting the targets in the IOP. (Tr. 144.) This contrasts with the evidence in the record before the court indicating that PCFFA's more stringent proposed temperature requirements are unlikely to be achievable. As Mr. Conant testified, current estimates indicate that end of April storage in Shasta will be somewhere on the order of 2.1 MAF, (Tr. 125), well shy of the 3.5 MAF PCFFA estimates is needed to meet their proposed temperature targets. (Rosenfeld Second Decl., ¶ 37.) The court acknowledges that PCFFA's witness, Dr. Rosenfield, has also pointed out that the temperature targets called for in the IOP have only been met once before where there has been less than 3.5 MAF in storage at the end of April. (*Id.*, ¶ 38.) This does not bode well for temperature management efforts in the coming year. But that projection certainly does not mean the court should choose to implement an even more onerous standard. NWF III, 886 F.3d at 823 ("It is not an abuse of discretion for a court to issue an injunction that does not completely prevent the irreparable harm that it identifies."); *Turtle Island*, 834 F. Supp. at 1019 ("Provided that the proposed consent decree is fair, reasonable, and equitable, and does not violate the law or public policy, it need not utilize the best scientific evidence. Such a requirement would transform evaluation of a proposed consent decree into a decision on the merits in contravention of controlling authority.").

(IOP Order at 87-89.) In sum, record evidence about the water supply situation in 2022 suggested that PCFFA's alternative temperature targets could not be met during the 2022 temperature management season. Second, even acknowledging that, all other things being equal, colder temperatures are better for egg and fry survival, there are tradeoffs to imposing colder

1 temperature requirements in dry years. Most directly, lowering a temperature target can influence
 2 the length of time managers can keep temperatures from rising to dangerously high levels. In
 3 addition, lower temperature targets can make it more difficult to conserve storage for use in the
 4 following year's temperature management season. (IOP Order at 53, 88.)

5 PCFFA focuses some energy in the present briefing on the issue of feasibility. (*See* Doc.
 6 417 at 13–14 (citing IOP Order at 87).) PCFFA argues that because the water supply situation
 7 going into WY 2023 was somewhat improved over the previous year, the Court's feasibility
 8 rationale is no longer valid. The Court does not see things that way. First, as discussed in the
 9 quote above, PCFFA's own expert witness indicated that end of April storage likely would have
 10 to reach 3.5 MAF to make meeting PCFFA's Critical year temperature target of 54.5°F feasible;
 11 3.9 MAF would be required to meet the 53.5°F target PCFFA seeks to impose in Dry or Below
 12 Normal years. (*See* 12/16/21 Rosenfield Decl., ¶ 37.)⁵⁶ The Court previously indicated in the IOP
 13 Order that those same storage circumstances would likely coincide with circumstances that would
 14 push the water year classification out of those respective categories anyway. (*See* IOP Order at
 15 113 n. 71; *see generally* 1/26/23 Conant Decl., ¶ 3.a & Ex. 1.) Put another way, if the water
 16 supply situation approaches the levels that might make it possible to meet PCFFA's temperature
 17 targets, it seems likely that the water year will also shift toward wetter classifications that will
 18 render PCFFA's proposed targets inapposite or irrelevant.

19 Moreover, the tradeoff rationale offered in the IOP Order remains valid. As the Court
 20 explained, (*see* IOP Order at 84–87), Water Project managers must balance the goal of
 21 temperature control in a given year against the *often conflicting* but nonetheless important goal of
 22

23 ⁵⁶ In a footnote in their reply brief, PCFFA suggests that Federal Defendants (and by extension the Court for adopting
 24 Federal Defendants' position on the matter) wrongly asserts that 3.5 MAF end-of-April storage is necessary to meet
 25 PCFFA's temperature targets. (*See* Doc. 442 at 5–6 n. 1.) PCFFA contends that "[o]perations in 2022 demonstrated
 26 that Reclamation can meet colder downstream temperatures, even without achieving that storage level by
 27 significantly reducing reservoir releases in the summer (including by reducing contract allocations)." (*Id.*) The Court
 28 finds this assertion generally puzzling in light of PCFFA's position in its opening brief that by late September,
 Reclamation had depleted Shasta Reservoir so much with its "excess releases" that water levels fell below the
 amount needed to allow for the use of the temperature control device. (Doc. 416 at 7.) To the extent PCFFA is
 directly referencing the scenario modeled by Reclamation in which release from Keswick from May through
 September would have been limited to 4,000 cfs, as the Court explains below, that scenario was not chosen in part
 because it was deemed infeasible by Project Managers. (*See infra* Part V.A.2.b.vi.b.)

1 maintaining sufficient carryover storage to ensure temperature control in the subsequent year. The
2 IOP's prioritization system that applies in Critical and Dry years is designed—at least in theory—
3 to help maximize the amount of water available to attain both goals. But maximizing available
4 water does not change the fact that in any given year maintaining current-year temperatures can
5 conflict with planning for the next year. This means, ipso facto, that applying PCFFA's lower
6 temperature targets in WY 2023 may make it more difficult to ensure sufficient cold water for
7 WY 2024, and vice versa. PCFFA offers no clear, direct response to the Court's prior conclusion
8 that the IOP offers a more balanced answer to this conundrum nor to the Court's ultimate
9 conclusion that the IOP is reasonable because it operates as a procedural mechanism that
10 maximizes the chances of "increasing the size of the pie" available to achieve the dual goals of
11 temperature control and carryover storage.

12 The Court reiterates its concern expressed above that no one seems to yet be able to
13 articulate why winter-run survival was so poor in 2022. Neither the temperature dependent
14 mortality modeling for 2022, which Federal Defendants and PCFFA continue to focus on, nor the
15 available data about thiamine deficiency can fully account for these losses. PCFFA in fact cites
16 the one government agency document that posits a theory: The October 13, 2022 Summary from
17 the Sacramento River Temperature Task Group, which indicates that background mortality of
18 juveniles might be "a lot higher" in 2022 because of "turbidity and low flows."⁵⁷
19 As discussed above, the Court is not yet convinced by Mr. Cavallo's arguments that the modestly
20 more protective temperature targets of the IOP should be abandoned for an approach that focuses
21 even less on temperatures, requiring that the Water Projects operate in dry years to PCFFA's
22 alternative temperature targets and carryover storage requirements could make flow concerns
23 *worse*, not better. To come full circle, the Court lands in the same place it did previously, with a
24 finding that the IOP represents the most reasonable approach, albeit an imperfect one, to
25 protecting the winter-run given the available information.

26
27 ⁵⁷ PCFFA cites this document in its opening brief, (Do. 416), for the proposition that "background mortality" could
28 be a significant source of mortality in 2022, but unhelpfully does not mention that the document specifically indicates
"turbidity and low flows" could be the cause of the additional background mortality.

b) *PCFFA's Procedural Objection and Related Proposed Modification*

PCFFA's next challenge to the IOP does not relate to its targets/goals but rather to its execution in 2022. Though PCFFA does not use the term "bad faith," they do suggest that Federal Defendants did not comply with the 2022 IOP's requirement that any departures from the temperature targets result in "an operation to provide sufficient habitat for the longest period possible." (Doc. 416 at 12.) PCFFA does not take issue with Federal Defendants' conclusion in 2022 that the Critical Year temperature target could not be met. Rather, PCFFA suggests that the alternative operation chosen was not the operation that would have provided sufficient habitat for the longest period possible, and therefore that Federal Defendants did not comply the requirement contained within the IOP that operators agree on temperature management that "provides sufficient habitat for the longest period possible."

Specifically, as explained above, during the process of developing the 2022 TMP, Reclamation modeled several proposed release schedules that capped average monthly releases from Keswick Dam from May through September at 5,000 cubic feet per second ("cfs"), 4,500 cfs, and 4,000 cfs, respectively. (12/9/22 Marcinkevage Decl., ¶¶ 5–7.) The modeling indicated the following:

- Scenario A (capping average monthly releases from Keswick at 5,000 cfs) was estimated to result in an estimated temperature dependent mortality of approximately 58% and End-of-September storage of approximately 1 MAF.
- Scenario B (capping releases at 4,000 cfs), provided an anticipated temperature dependent mortality of approximately 41% and End-of-September storage of approximately 1.3 MAF.
- Scenario C (capping releases at 4,500 cfs) provided an anticipated temperature dependent mortality of approximately 45%, and End-of-September storage of approximately 1.2 MAF.

(*Id.* at 7.)

Ultimately, Reclamation chose, and NMFS approved, the 4,500 cfs release schedule and

1 deemed it the operation that would maintain habitat conditions for the longest period possible.
 2 (*See generally id.*) PCFFA points to this choice as a violation of the IOP because, facially, the
 3 4,000 cfs scenario produced better results in terms of temperature dependent mortality and
 4 carryover storage. PCFFA criticizes the 4,500 cfs scenario a “compromise” choice, (Doc. 442 at
 5 7), but the record indicates otherwise. Reclamation’s declarants indicate that the 4,000 cfs
 6 scenario was rejected because it would have resulted in marginal temperature benefits and was
 7 associated with high levels of operational uncertainty due to the fact that such low flows were
 8 relatively unprecedented in the experience of operators. (*See id.*, ¶ 8; *see also* 12/9/22 Conant
 9 Decl., Doc. 428-2, ¶ 8.) Though the declarations lack directness on this issue, the Court gleans
 10 from the record that Water Project operators simply did not trust that the 4,000 cfs could be
 11 implemented. (12/9/22 Conant Decl., ¶ 8.) Considering all the circumstances, operators concluded
 12 that the 4,500 cfs scenario was the one that would provide cold-water habitat for the longest
 13 period possible. (*Id.*) It happens that the 4,500 cfs scenario also balanced other concerns better
 14 than the 4,000 cfs scenario. (*Id.*) This does not turn an infeasible option into an impermissible
 15 “compromise” that violates the terms of the IOP.

16 For this reason, the Court gives less weight to PCFFA’s related request to modify the
 17 procedures of the IOP to require a detailed public disclosure of the agencies’ reasons whenever
 18 they depart from the IOP’s temperature targets. Specifically, they requested that the following
 19 language be added to Paragraph 12.i.b:

20 This temperature management plan for meeting winter-run Chinook
 21 salmon habitat criteria for the longest period possible shall be a
 22 public document, shall explain why Reclamation is unable to meet
 23 habitat criteria for the entire period as described in Paragraph 15(i)
 24 (including quantifying water deliveries made or planned, and
 identifying the specific water users at issue and the contractual or
 other basis for the deliveries), and shall be subject to approval by
 NMFS before any deliveries of stored water are made from Shasta
 for any reason other than specified in Paragraph 12(i)(a).

25 (Doc. 416-2 at 5.) PCFFA’s primary justification for the imposition of this requirement is that
 26 Reclamation failed to comply with the 2022 IOP’s terms. (Doc. 416 at 26.) Because that
 27 underlying argument has been rejected, the justification for requiring disclosures of this nature—
 28 particularly the requirement to quantify water deliveries made or planned and identify the specific

1 water users at issue and contractual or other basis for the deliveries—is unjustified on this
 2 record.⁵⁸ Nonetheless, the Court will require Federal Defendants to file on the docket of these
 3 cases a copy of the draft and final TMPs for 2023 along with a justification for any planned
 4 departures from the IOP’s temperature targets. In requiring such a filing, the Court is exercising
 5 its inherent authority to monitor compliance with its own orders. It is not amending the IOP.

6 c) *PCFFA’s Renewed Request to Bar Use of TUCPs Unless*
 7 *All Non-Emergency CVP Deliveries Are Curtailed*

8 PCFFA again reiterates its call to constrain Water Project operators’ use of TUCPs. The
 9 Court’s prior reasoning on this subject provides context for PCFFA’s updated arguments on this
 10 subject:

11 PCFFA’s proposed injunction also contains a provision that would
 12 require Reclamation to comply with “the provisions of the State
 13 Water Resources Control Board’s Water Rights Decision 1641 [(D-
 14 1641)] applicable to the State Water Project and Central Valley
 Project, including requirements relating to Delta inflows, Delta
 outflow, X2, and closures of the Delta Cross Channel Gates.”
 (PCFFA PI ¶ 5.)

15 D-1641, which is binding on Reclamation, is designed to control
 16 salinity in the Bay Delta to ensure water quality. (*See supra*
 17 footnote 32.) Compliance with D-1641 was a “baseline” condition
 18 built into the 2019 BiOps. (*See* Doc. 322 at 10–11 (providing
 record citations).) In other words, harms to fish were evaluated in
 those BiOps based upon the assumption that the prescriptions
 contained within D-1641 would be implemented.

19 In recent years, due to drought conditions, Reclamation and DWR
 20 have applied to the State Board for permission to deviate from D-
 21 1641. (*See, e.g.,* Doc. 272-4.) These applications are called
 “Temporary Urgency Change Petitions” (“TUCP”). One of the
 22 primary reasons given for applying for (and approving) the TUCPs
 is to preserve cold water behind the dams in the system designed to
 23 protect fish later in the year. (*See generally id.*) This has tradeoffs
 for water quality and flow downstream, and the State Board has
 24 acknowledged this reality in approving past TUCPs. In particular,
 in approving TUCPs, the State Board has specifically
 25 acknowledged the potential harm posed to Delta smelt as a result.
 (*Id.* at 19.)

26 PCFFA’s proposed injunction would have Reclamation comply
 with D-1641 even if it receives a waiver of D-1641’s requirements

27 ⁵⁸ To be sure, a coherent analysis of that type of information would enable better oversight of the IOP’s
 28 implementation. That does not mean it is reasonable, justified, or even possible to require that analysis before a TMP
 can be finalized.

1 from the State Water Resources Control Board. (PCFFA PI ¶ 5.)
2 Under PCFFA's revised proposal, even this provision appears to be
3 subject to the new "best efforts" exception language. As noted
4 previously, under that language, if Reclamation is unable to meet
5 PCFFA's Shasta targets or D-1641's requirements despite "best
6 efforts" to do so, and despite "curtailing water deliveries and
7 releases for diversion" to the "extent permitted by law,"
8 Reclamation could deviate from the injunctions' requirements,
9 provided Reclamation meets and confers with the parties as soon as
10 possible. (PCFFA PI at 3.)

11 When the initial briefs were filed regarding these injunctive relief
12 motions, Reclamation and DWR had a TUCP pending before the
13 State Board that would apply this spring. (CNRA Doc. 252-1, Ex.
14 5.) They have since withdrawn that petition. (*Id.*) As a result, there
15 is now no immediate danger of a TUCP this year. Nonetheless,
16 PCFFA has still expressed its concern because nothing prevents
17 Reclamation and DWR from filing another TUCP. (*See* Doc. 368 at
18 11.)

19 The court understands PCFFA's point in this regard. The BiOps
20 assume that the actions required by D-1641 will be implemented.
21 Because those actions are protective of fish, that is a material aspect
22 of the baseline that the BiOps use to evaluate whether or not the
23 Water Projects will cause jeopardy/adverse modification under the
24 ESA. No party before the court suggests that the BiOps
25 meaningfully considered how fish would be impacted by any
26 TUCPs, let alone by the increasingly frequent use of TUCPs. But,
27 PCFFA's proposal—that the court prohibit Reclamation from
28 applying for TUCPs unless it jumps through certain identified
hoops—is not a reasonable or particularly helpful response to this
asserted failure. PCFFA's proposal appears to be designed to
require Reclamation to do absolutely everything else in its power to
meet temperature requirements for winter-run before applying for a
TUCP. The court has already explained why it believes the IOP's
process provides a reasonable mechanism for ensuring just this, by
requiring Reclamation to prioritize the needs of winter-run habitat
over water deliveries to the extent it can do so consistent with the
law and its contractual obligations. PCFFA's proposal would
appear to presume that Reclamation will try to evade or perform
some sort of slight-of-hand with regard to these self-imposed
priorities through the mechanism of applying for TUCPs. In the
court's view, however, it seems far more likely that a TUCP may be
the only way Reclamation can provide suitable temperatures for
winter-run this coming season.

Moreover, the TUCP approval process already requires the State
Water Resources Control Board to consider the various species-
versus-species tradeoffs in question here. (Doc. 343-1 at 11–12
(*amicus curiae* brief explaining TUCP process).) The State Board is
also required to consider a number of other interests in the balance
when evaluating TUCPs. (*Id.*) No matter how PCFFA attempts to
describe this aspect of its proposed injunction, adopting it would be
an invasion by this court into the State Board's process. The court
will not do so on the present record, which does not justify the

1 undertaking of such an extraordinary measure.
 2 (IOP Order at 116–18.)

3 The record has developed further on this subject. On February 13, 2023, State Plaintiffs
 4 filed a notice indicating, among other things,⁵⁹ that Federal Defendants and DWR filed a petition
 5 on that same date with the SWRCB to modify certain Delta outflow requirements that apply to
 6 the Water Projects. (CNRA Doc. 320, Ex. 2.) The cover letter to the SWRCB attached to the
 7 TUCP succinctly summarizes the request and the rationale being offered for it:

8 The California Department of Water Resources (DWR) and the
 9 United States Bureau of Reclamation (Reclamation) are submitting
 10 the attached Temporary Urgency Change Petition (TUCP) to seek
 11 an urgent, temporary change in the State Water Project and Central
 12 Valley Project's (SWP and CVP) water rights compliance location
 13 for X2⁶⁰ during the months of February and March.

14 DWR and Reclamation are working to actively manage the SWP
 15 and CVP to ensure the availability of an adequate water supply
 16 while also ensuring protection of critical species and the
 17 environment. Following the driest three-year period on record,
 18 California experienced an extremely wet January that provided
 19 much-needed rain and snowfall but did not end drought conditions
 20 for much of the state. Regions that rely on the water from the
 21 Sacramento–San Joaquin Delta (Delta) and Central Valley as well
 22 as the Colorado River system face increasingly severe water
 23 shortage conditions. Additionally, groundwater basins that serve
 24 communities in the Central Valley have not recovered from back-
 25 to-back years of drought and chronic overdraft.

26 The rapid shift from extreme dry conditions to extreme wet
 27 conditions, and potentially back to extreme dry conditions, is a new
 28 reality that challenges our ability to balance water project
 29 operations while storing as much water as possible, given the
 30 uncertain outlook for the remaining two months of the traditional
 31 rainy season.

32 Extremely wet conditions in January triggered a water quality
 33 standard in the Delta that, coupled with the extended dry period
 34 since then, pursuant to Water Right Decision 1641 (D-1641), would
 35 require a sharp decrease in Delta water supply exports and a sharp
 36 increase in releases from upstream storage reservoirs such as Lake
 37 Oroville and Folsom Lake. Historically, wet conditions in January
 38 would be expected to be followed by extended runoff through

⁵⁹ The Notice also informed the Court and the parties that one condition contained in the State ITP (and also incorporated by reference into the 2023 IOP) has been amended to change how Project managers will identify winter-run Chinook salmon caught in salvage facilities. (See CNRA Doc. 320, Ex. 1.) It does not appear that this change will have any material impact on the present dispute, and no party has indicated any objection to the change, so the Court will not discuss this matter further.

⁶⁰ See *supra* note 12 for an explanation of X2.

1 February and March, thus muting the water supply impacts from a
2 decrease in exports and an increase in releases from upstream
3 reservoirs. However, as 2022 climate extremes showed, a wet
4 winter can be followed by an extremely dry period. A return to dry
5 conditions the rest of winter and spring of 2023, coupled with the
6 current D-1641 requirements, would mean that the water storage
7 available for release later in the spring and summer would be
8 hundreds of thousands of acre-feet less than needed.

9 Deteriorating hydrology requires the SWP and CVP to modify
10 operations to comply with the X2 water quality requirements
11 prescribed by D-1641. DWR and Reclamation have prepared this
12 TUCP to file with the State Water Resources Control Board (State
13 Water Board) to seek the State Water Board's approval of an
14 urgent, temporary change in the projects' water rights compliance
15 location for X2 during the months of February and March. Our
16 modeling shows that January's wet hydrology, along with
17 operational actions from the SWP and CVP, created conditions that
18 will be protective of species throughout February and March.
19 Temporarily moving our permit compliance point to the east will
20 allow the projects to operate in a way that does not result in
21 significant impacts to delta smelt and longfin smelt, given favorable
22 conditions provided through the January storms and reduced project
23 exports, while enabling additional water storage to stabilize water
24 supply in the spring and summer. The proposed change will provide
25 clear storage benefits south of the Delta and will also have the
26 potential to provide storage benefits north of the Delta.

27 Maintaining water storage is critical should dry conditions return.
28 The expectation is that as snowmelt occurs later this winter and
spring, inflows into the Delta will return in significant volumes that
naturally extend wetter conditions.

We must consider this new weather reality of extremes and
continue our efforts to provide adequate water to simultaneously
protect California's species and the environment and meet the water
supply needs of the people of California.

(*Id.* at 15–16.)

PCFFA again argues that Water Project managers should be prohibited from seeking
waivers from the requirements of D-1641 unless and until “Reclamation [] curtail[s], to the
extent of its discretion, water deliveries to, water supply allocations for, and water diversions by
all contractors of the Central Valley Project, as necessary to meet the requirements of [D-1641],
except for: (a) water deliveries necessary for human health and safety, as defined in section 878.1
of title 24 of the California Code of Regulations; and (b) water deliveries to wildlife refuges
(Level 2) as required by section 3406(d) of Public Law 102-575.” (Doc. 416-2.)

PCFFA's most recent filing points to the February 13, 2023, TUCP as an example of why

1 this request should be granted. (Doc. 458.) Most pertinently, PCFFA reads the TUCP as an
2 admission that Reclamation and DWR are seeking to violate Delta water quality standards in a
3 manner that “will be harmful to listed species in an attempt to ‘enable additional water storage,’
4 without any showing that Reclamation considered reducing discretionary deliveries.” (*Id.* at 1.)
5 Plaintiff correctly points out that the analysis included in the TUCP itself indicates that the TUCP
6 could expose winter-run Chinook salmon to greater entrainment risk. (2/13/23 TUCP at p. 2-20).
7 In addition, the TUCP indicates that, if granted, operations would result in notably more negative
8 OMR flows in February and March than under D-1641. (See *id.* at p. 2-19.) According to PCFFA,
9 this would increase entrainment risk to Delta smelt. (Doc. 458 at 3.) PCFFA notes that according
10 to monitoring data, Delta smelt have been observed in salvaged at the pumps in early February,
11 “indicating that members of this sensitive species are currently present in the Delta and being
12 killed by Project operations.” (*Id.*)

13 The State Water Contractors’ (“SWC”) response to PCFFA’s filing paints a more
14 balanced picture. (Doc. 461.) SWC point out that the biological review that accompanied the
15 TUCP incorporates information from consultation with the fisheries agencies, including NMFS,
16 FWS, and CDFW. (2/13/23 TUCP at p. 2-3.) Moreover, though the modeling disclosed in the
17 TUCP indicates a relatively minor decrease (2%) in through-Delta survival of juvenile winter-run
18 in February, this is based on a conservative hydrology forecast, which assumes very dry
19 conditions. (*Id.* at 2-6.) With regard to Delta smelt, SWC point out that the Delta smelt that have
20 been found in the salvage facilities in February were all part of a group of hatchery (i.e.,
21 “marked”) Delta smelt released into the Delta in large numbers at the end of January. (See Doc.
22 461-1.) Nonetheless, managers “remain concerned” about Delta smelt salvage. (*Id.*)

23 To the extent there was any doubt previously, PCFFA has now underscored its point about
24 the interplay of TUCPs and the BiOps at issue in these cases. Because the BiOps rely heavily on
25 state regulatory requirements such as D-1641 as baseline regulatory constraints protective of
26 listed species, frequently modifying those constraints raises serious questions about whether the
27 BiOp’s can reasonably rely on those protections. But that does not mean the needle has moved
28 sufficiently in favor of the relief PCFFA is requesting in the present motions. To be clear, PCFFA

1 is requesting that the Court prohibit Reclamation from petitioning the SWRCB—the California
 2 entity charged with regulating water quality—for relief from the requirements of D-1641 unless
 3 and until Reclamation first curtails “to the extent of its discretion, water deliveries to, water
 4 supply allocations for, and water diversions by all contractors of the Central Valley Project,”
 5 except those necessary to preserve health and human safety and wildlife refuges. This remains a
 6 truly extraordinary request that is not justified under the circumstances for the reasons the Court
 7 explained in its prior order.⁶¹

8 c. *2023 IOP’s Delta Operations Provisions*

9 Only one aspect of Delta operations, the operation termed “storm-flex,” is actually in
 10 dispute in relation to the 2023 IOP. The Court discusses that disputes first, before briefly re-
 11 approving the other aspects of the 2023 IOP that concern operations in the Delta.

12 i. “Storm Flex”

13 The Proposed Action reviewed in the 2019 BiOps authorizes a new type of export
 14 pumping operation termed “storm-related flexibility” (“Storm Flex”), under which the CVP and
 15 SWP may attempt to capture flows during storm-related events. Storm Flex allows increases in
 16 exports (theoretically up to the full combined capacity of the two export pumping facilities, which
 17 is 14,900 cfs) unless turbidity at Bacon Island is very high (an event that can draw delta smelt into
 18 the area near the export pumps). (*See* 2019 FWS BiOp at p. 141; 2019 NMFS BiOp at pp 530–
 19 33.) The idea behind Storm-Flex is to “capture any excess water in the Delta system that is
 20 available through storm-related increases in river inflows and export that water south of the
 21 Delta.” (2019 NMFS BiOp at 530.) As the IOP Order noted (*see* IOP Order at 98), Storm-Flex is
 22 not well delineated in the Proposed Action. Though certain constraints were built into the
 23 Proposed Action that could theoretically constrain the use of Storm-Flex,⁶² overall, no time limits

24 _____
 25 ⁶¹ The Court takes judicial notice of the fact that late in its process of finalizing this order, the SWRCB approved the
 26 TUCP. *See* https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp/docs/2023/20230221-final-tuco.pdf (last visited Feb. 24, 2023). The approval does not appear to warrant any changes to its conclusions or reasoning herein.

27 ⁶² For example, Reclamation and DWR might have already determined that additional OMR restrictions were needed
 28 in accordance with other requirements of the Proposed Action. (*See* 2019 FWS BiOp at 47.) In addition, Storm-Flex operations are not permitted if “[a]n evaluation of environmental and biological conditions indicates more negative OMR would likely cause Reclamation and DWR to trigger” one of the loss thresholds set forth in the 2019 BiOps, or if excessive numbers of yearling Spring-Run Chinook salmon released from the Coleman National Fish Hatchery are

1 are placed on the use of Storm-Flex, nor is the concept of a “storm event” defined.

2 The 2022 IOP imposed some additional limitations on Storm Flex by incorporating State
3 ITP § 8.7, which provides generally that reverse OMR flows under cannot ever be permitted to
4 exceed -6,250 cfs on a five-day moving average. (2022 IOP, ¶¶ 6.vi, 7; State ITP § 8.7.)
5 Moreover, the 2022 IOP clarified that from March through June, the spring spawning period for
6 Delta smelt, reverse OMR flows cannot exceed -5,000 on a 14-day moving average. (2022
7 IOP, ¶7.i.) This limitation was set forth in the 2019 FWS BiOp. (*Id.*) Also, the 2022 IOP only
8 permitted Storm Flex operations to be implemented with the approval of the Regional Director of
9 FWS and Regional Administrator of NMFS. (2022 IOP, ¶ 7.iv.)

10 The IOP Order found there was no cogent objection in the record to the imposition of the
11 IOP’s limitations on Storm-Flex and that the record supported a finding that the “essentially
12 unlimited pumping” that would be permitted under the Proposed Action (i.e., without the 2022
13 IOP) had the potential to harm young, listed fish. (IOP Order at 99 (*citing* 11/21/21 Herbold
14 Decl., ¶ 61) (“Timing unrestricted operations to the same increases in river flow that tend to move
15 young smelt or direct young salmonids means greatly increased impacts of the export facilities on
16 both listed smelts and listed salmonids, most of which are already at dangerously low population
17 abundances as a result of the extraordinarily hot and dry conditions of spring and summer 2021”).

18 The IOP Order also carefully considered PCFFA’s objection that the IOP did not limit
19 Storm-Flex *enough*. PCFFA argued that there is no biological basis to conclude that flows up to
20 -6,250 are safe for migrating fish. (Doc. 322 at 16–17.) PCFFA’s proposed alternative injunction
21 would not have allowed any Storm Flex at all under any circumstances. (Doc. 321, ¶ 2.) PCFFA’s
22 biology expert Dr. Jonathan Rosenfield opined that the negative flows permitted under the IOP
23 (up to -6,250) are “extremely high” and because they are calculated as a five-day moving average,
24 they can persist for several days. (12/16/21 Rosenfeld Decl., Doc. 325, ¶ 50.) He explained that
25 “Mass entrainment of endangered fishes is usually episodic, thus, a large proportion of any of the
26 endangered species’ populations may be entrained/salvaged in just a few days. [] Damage to

27 salvaged at the export facilities. (*Id.*) Finally, Storm-Flex operations are not permitted under the Proposed Action if
28 “Reclamation and DWR identify changes in spawning, rearing, foraging, sheltering, or migration behavior beyond
those anticipated to occur under OMR management. (*Id.*)

1 endangered fish species arising from negative OMR flows averaging -6,250 cfs could quickly
 2 become catastrophic, irreparable, and significantly threaten their survival and recovery in the
 3 wild.” (*Id.* (internal citations omitted).)

4 Notwithstanding these concerns, the IOP Order, which issued on March 11, 2022,
 5 approved of the IOP’s approach to Storm-Flex with some reservations and suggestions:

6 Notably, Storm Flex has thus far never been used. (*See* Herbold
 7 Second Decl., ¶ 63.) Moreover, due to current hydrology and
 8 forecasts, it is unlikely to be used this year. (Tr. 129.) At the same
 9 time, Water Project managers indicate that Storm Flex may help
 10 capture much-needed water in a dry year. Reclamation’s Mr.
 11 Conant testified:

12 Particularly in a year like this, a critical year like this . . . if
 13 we have a March miracle or at some point have excess flows
 14 in the Delta, it’s essential that we pick up whatever water is
 15 available in order to . . . provide water for cities and farms
 16 and refuges that we’re obligated to supply.

17 (Tr. 128.)

18 Overall, the court believes Dr. Rosenfield expresses legitimate
 19 concerns that, by allowing exports above -6,250 cfs, even the more
 20 limited variation of Storm Flex permitted in the IOP may risk large
 21 entrainment events. Even Dr. Herbold admits that the IOP retains
 22 the possibility of increased exports “at times of potentially
 23 significant risk to listed species.” (Herbold Second Decl., ¶ 63.)
 24 But, as Dr. Herbold also indicates, the IOP imposes somewhat
 25 “clearer parameters and with oversight by the regulatory agencies.”
 26 Crucially, the circumstances on the ground suggest it is very
 27 unlikely that Storm Flex will be employed in the current Water
 28 Year. Given that, the court believes the IOP’s constraints on Storm
 Flex are sufficient for now. In reaching this conclusion, the court
 notes the general rule that “[i]t is *not* an abuse of discretion for a
 court to issue an injunction that *does not completely prevent the
 irreparable harm that it identifies.*” *NWF III*, 886 F.3d at 823
 (emphasis added). There is no reason why that rule is not equally
 applicable to the court’s review under the consent decree
 jurisprudence.

23 In any renewed proposal for injunctive relief, the parties should
 24 consider further clarifying the constraints that will be imposed upon
 25 Storm Flex. It remains unclear, for example, exactly what the
 26 Regional Director of FWS and Regional Administrator of NMFS
 will take into consideration in approving or declining to approve the
 use of Storm Flex going forward.

27 (IOP Order at 100–101.)

28 The 2023 IOP adds language to attempt to address the Court’s concern. Specifically, the

2023 IOP provided some additional detail as to what the Director of FWS and Regional Administrator of NMFS will consider when determining whether to approve Storm-Flex operations.

Factors considered in the decision shall include habitat conditions, potential effects, and seasonal incidental take levels for species covered under the 2019 Biological Opinions.

(2023 IOP, § 7.iv.) Federal Defendants and State Plaintiffs claim that this addition directly addresses the Court’s instruction that, “[i]n any renewed proposal for injunctive relief, the parties should consider further clarifying the constraints that will be imposed upon Storm Flex.” (Doc. 419 at 10 (quoting IOP Order at 101).) The Court is inclined to agree with PCFFA that this list of factors is not particularly helpful. (Doc. 416 at 28.) The language does little more than generally outline those issues that obviously should be considered.⁶³ But, overall, the Court does not find the presence of this verbiage to be dispositive. Together, the Proposed Action and the 2023 IOP cabin the Storm-Flex provision in ways that make it unlikely to pose a significant risk. First, to the Court’s understanding, Storm-Flex will be significantly limited *starting on March 1* by the 2019 FWS BiOp’s requirement that OMR flows be no more negative than -5,000 cfs on a 14-day moving average. PCFFA does not seem to take issue with the extent/likely effectiveness of this constraint, as it is the *exact same* constraint PCFFA requests that the Court impose for the entire January through June period. (See Doc. 416-1, § 7.i.) Therefore, the only debate that remains relevant for this water year concerns how Storm-Flex might be implemented in the remaining days of February 2023. In fact, the TUCP discussed above appears to assume (or at least represent to the SWRCB) that OMR flows will remain no more negative than -5,000 throughout the period covered by the TUCP, which includes the remaining days of February. (See CNRA Doc. 320, Ex. 2 at p. 2-19.).

The Court notes that it is not moved by the constant refrain of some parties that various forms of injunctive relief, including any relief related to Storm-Flex, is unnecessary because its use is “speculative.” (See, e.g., Doc. 430 (Defendant Intervenor’s objections to PCFFA’s request

⁶³ The Court notes that notwithstanding the reasoning provided in the IOP Order, which included a rejection of PCFFA’s position that Storm-Flex should be prohibited outright, PCFFA has not suggested additional or more detailed factors that FWS and NMFS leadership should be considering.

1 for modifications to the 2023 IOP.) When would the use of Storm-Flex not be speculative given
 2 how the operation is defined in the relevant decision documents? When a “storm event” is
 3 forecasted by qualified meteorologists? When a Storm-Flex operation is formally approved by
 4 FWS and NMFS leadership? The Court discussed this kind of uncertainty in the IOP Order,
 5 making it clear that though such uncertainties complicated decision-making, they are “not an
 6 absolute bar to injunctive relief.” (*See* IOP Order at 66.)

7 Yet on the present record, the Court is still persuaded that Storm-Flex should remain in
 8 place as an option for project operators in the coming weeks should it not be otherwise prohibited.
 9 It is cabined by the numerous constraints described above, including multiple risk assessments
 10 before pumping starts, and a requirement to cease increased pumping based on ongoing
 11 assessments. (*See* 2023 IOP, ¶ 6.vi; State ITP § 8.7.) Moreover, the Regional Director of FWS
 12 and Regional Administrator of NMFS—leaders of the agencies charged with protecting the listed
 13 species at issue, not the agencies charged with task of managing the water projects—retain
 14 control over the final decision to implement a Storm-Flex operation. (2023 IOP, ¶ 7.iv.) Though
 15 the Court certainly still sees room for improvement in the guidance governing that decision-
 16 making process, nothing in the present record suggests they will execute their responsibilities
 17 with anything other than diligence and good faith. The need to take advantage of water supplies
 18 for South-of-Delta users when those supplies become available appears to be as important this
 19 year as it was last year. (*See* IOP Order at 100 (citing testimony of Reclamation’s Regional
 20 Director, Ernest Conant).)

21 ii. Delta Loss Thresholds to Protect Salmonids.

22 The 2023 IOP continues provisions in the 2022 IOP that enhanced and/or strengthened
 23 “loss thresholds” used to protect salmonids migrating through the Delta. (*See* IOP Order at 38–40
 24 (providing background and summaries of competing proposals); *see also* 2023 IOP, ¶ 6.) The
 25 IOP’s loss threshold provisions apply in all water year types. (*See* 2023 IOP, ¶ 3.) The 2022
 26 IOP’s loss threshold provisions were found reasonable because they addressed insufficiencies in
 27 the thresholds set forth in the 2019 NMFS BiOp in appropriate ways. (*Id.* at 94–97.) Even though
 28 it was unclear at the time the IOP Approval Order issued whether any of the IOP’s loss thresholds

would come into play in 2022, Judge Drozd noted that the Court was “unlikely to be able to move quickly enough to address [the various possible] scenarios by adjusting interim remedies on the fly” and therefore “adoption of the IOP makes sense” because the IOP will impose “appropriate mechanisms” if they are needed.” (*Id.* at 96–97.) The Court further found that PCFFA had “offered no cogent argument to suggest why its proposed delta loss thresholds for salmonids are preferable to those adopted in the IOP.” (*Id.* at 114.) The parties do not seriously contest these findings here. Therefore, the Court leaves the prior order’s findings undisturbed on this point.

iii. I:E Ratio

The same conclusion pertains to the provisions in the 2023 IOP which continue the so-called I:E Ratio.⁶⁴ (*See* 2023 IOP, ¶ 11; IOP Order at 40–41 (providing background on I:E ratio, explaining that it was not included in the 2019 NMFS BiOp, and that both the 2022 IOP and PCFFA’s competing proposal sought to re-impose an I:E ratio).) The Court, having previously found the scientific basis for the I:E Ratio to be sound, rejected challenges to inclusion of the Ratio in the IOP. (*Id.* at 97–98.) Again, the parties do not materially contest these findings here. The Court will not manufacture a dispute where there is none. Moreover, this provision of the IOP will only be triggered if the San Joaquin Valley 60-20-20 index is classified as Critical, Dry, or Below Normal. (2023 IOP, ¶ 11.) The record suggests this is unlikely. (*See* 2/10/23 Conant Decl., ¶¶ 12–13.)

iv. OMR Restrictions to Protect Larval Delta Smelt.

The IOP Order found that the delta smelt is perilously close to extinction, quoting State Plaintiff’s expert Dr. Herbold’s summary on the subject:

There is considerable concern that Delta Smelt face imminent extinction in the wild. None have been caught in the standard sampling for the last four years. The standard sampling addresses a very small fraction of the waters of the estuary so we could be missing some that are still there. A newer year-round sampling program targets areas and water conditions where Delta Smelt are expected to occur and two Delta Smelt were found in 2021, so they appear to be exceptionally rare rather than extinct. For the last 25

⁶⁴ As explained in the IOP Approval Order, a much earlier biological opinion contained a requirement that San Joaquin River inflow be balanced against exports according to pre-determined ratios (I:E Ratio) set according to the category of water year. (*See id.* at p. 643.) This had the operative effect of requiring exports to be reduced under certain circumstances any time the I:E Ratio was in effect.

years, high spring outflows have usually foretold upswings in the autumn abundance of Delta Smelt. This pattern continued in the wet year of 2011. But despite the high outflows in spring 2017 and above-average outflows in 2018 and 2019, Delta Smelt have almost disappeared

(Herbold Second Decl., ¶ 25.)

The 2023 IOP, like the 2022 IOP, adopts a measure from the State ITP designed to prevent delta smelt from being drawn into the southern Delta where conditions are hazardous for them. The IOP Order reviewed the regulatory framework that led to these provisions, (IOP Order at 102), and, over various objections, found this aspect of the IOP reasonable. (*See id.* at 104.) No party has discussed this provision in this round of briefing and the Court finds no basis for departing from the prior finding as to this issue.⁶⁵

v. Delta Smelt Summer-Fall Action

The 2023 IOP, like the 2022 IOP, also provides for an action designed to improve delta smelt habitat, dubbed the “Summer-Fall Action.” This action is based upon one already contained in the 2019 FWS BiOp. Under the 2019 FWS BiOp, in below normal, above normal, and wet years, Reclamation will maintain low salinity habitat for delta smelt in Suisun Marsh and Grizzly Bay (maintaining 0-6 ppt salinity at Belden’s Landing), among other things. (2019 FWS BiOp at pp. 51–54.) The State ITP already requires DWR to operate the Suisun Marsh Salinity Control Gates for no more than 60 days to maximize the number of days that Belden’s Landing three-day average salinity is equal to or less than 4 ppt salinity (a salinity within the range set forth in the 2019 FWS BiOp). (State ITP § 9.1.3.1.) The IOP indicates that Reclamation agrees to “share the water costs” for this action by DWR. (IOP ¶ 10; State ITP § 9.1.3.1.)

The IOP Order found this provision reasonable, over objections. (IOP Order at 105–106.) No party has discussed this provision in the current round of briefing. The Court therefore sees no reason to depart from the prior finding that this provision is reasonable.

B. Public Interest

⁶⁵ Relatedly, the IOP Order rejected PCFFA’s cross-motion for injunctive relief on this subject, which called for OMR flows to be positive for seven consecutive days following the salvage of one or more delta smelt by the CVP or SWP. (*Id.* at 118–120.) PCFFA has not renewed this request.

1 Finally, applying the consent decree standard, before approving the IOP, the court must
 2 ensure that the consent decree furthers the public interest. *See United States v. Pac. Gas & Elec.*,
 3 776 F. Supp. 2d 1007, 1029 (N.D. Cal. 2011). Whether a consent decree is within the public
 4 interest in part depends on whether it is “consistent with the statute that the judgment was meant
 5 to enforce.” *Turtle Island*, 834 F. Supp. 2d at 1019 (quoting *Citizens for a Better Env’t v.*
 6 *Gorsuch*, 718 F.2d 1117, 1128 (D.C. Cir. 1983)). As the IOP Order explained, “the primary
 7 statute at issue here is the ESA, although CESA is also arguably relevant.” (IOP Order at 105-106
 8 & n. 67 (explaining that the goals of CESA are substantially identical to those of the ESA and that
 9 while some of the claims in this case arise under NEPA, NEPA has not been the focus of briefing
 10 in relation to approval of the IOP or any of the alternative requests for injunctive relief).)

11 The IOP Order concisely explained why the IOP was consistent with the ESA, having
 12 earlier detailed how the 2022 IOP’s provisions operate to provide additional protections for listed
 13 species above and beyond those contained in the 2019 BiOps:

14 The ESA’s stated purposes are “to provide a means whereby the
 15 ecosystems upon which endangered species and threatened species
 16 depend may be conserved . . .” 16 U.S.C. § 1531(b); *see also Hill*,
 17 437 U.S. at 174 (“[E]xamination of the language, history, and
 18 structure of the [ESA] indicates beyond doubt that Congress
 19 intended endangered species to be afforded the highest of
 20 priorities.”). While a consent decree (or a stipulated injunction by
 21 analogy) must be “consistent with” the relevant statutes, it need not
 22 provide all of the relief a party might otherwise be entitled to under
 23 those laws. *See Ctr. for Biological Diversity v. Bureau of Land*
Mgmt., No. C 00-00927 WHA, 2001 WL 777088, at *6 (N.D. Cal.
 Mar. 20, 2001) (acknowledging that while the plaintiff might have
 been entitled to “significant injunctive relief” had they proven all
 alleged ESA violations at trial, the consent decree’s terms
 represented “compromise and ongoing negotiation” to, for example,
 allow “limited expansion of mining”). For all of the reasons set
 forth above, the court concludes that the terms of the IOP are
 consistent with the ESA.

24 (IOP Order at 106.)

25 For the reasons set forth in the IOP Order and in the Court’s reasoning above, it reaches
 26 the same conclusion again. Given all of the information before it, the IOP represents an
 27 appropriate approach because it is more protective in key ways than the 2019 BiOps. Though
 28 these additional protections may not solve all of the physical and biological problems facing the

1 listed species, the alternatives offered by the objecting parties are more inappropriate.

2 Separately, but relatedly, certain Defendant Intervenors again argue that the 2023 IOP
3 should not be adopted because Federal Defendants did not subject the 2023 IOP to review under
4 NEPA, the ESA, and/or the WIIN Act. (*See* Doc. 414 at 12–13.) The same argument was
5 rejected, after lengthy discussion, in the IOP Order, the content of which the Court will not repeat
6 here but incorporates by reference. (IOP Order at 75–80.) In sum, the Court found that review of
7 the IOP under NEPA and the ESA, and compliance with the procedural requirements of the WIIN
8 Act are not required before the Court approves interim injunctive relief in the form of the 2023
9 IOP because the IOP is not both “substantial and permanent” so as to run afoul of the relevant
10 caselaw. (*Id.* (discussing *Conservation Northwest v. Sherman*, 715 F.3d 1181 (9th Cir. 2013).)⁶⁶

11 The SRS Contractors focus on a practical argument:

12 Federal Defendants’ failure to comply with these statutes inhibits
13 the Court’s ability to determine whether the IOP Extension is
14 indeed a “reasonable factual and legal determination.” The IOP
15 Extension (like the 2022 IOP) substantially departs from the action
16 analyzed under the 2019 biological opinions and Final
17 Environmental Impact Statement or any subsequent NEPA and
18 ESA analysis. Federal Defendants have not provided the technical
19 analysis that would allow the Court to evaluate the appropriateness
20 of the IOP Extension. Instead, Federal Defendants ask this Court to
21 impose the IOP Extension without conducting any meaningful
22 environmental review of how the CVP and SWP operated under the
23 original IOP and whether or not it is reasonable to continue.
24 Effectively, Federal Defendants shift their burden onto this Court
without providing the Court with the right tools to make the
decision.

25 (Doc. 414 at 13.) This practical problem is real. As the Court mentioned above, it finds the record
26 material presented recently to be less helpful than it would have hoped. But, in the Court’s
27 reading of *Conservation Northwest v. Sherman*, neither NEPA nor ESA review are required
28 before imposition of interim relief of the nature requested here. One lesson of the jurisprudence

25 ⁶⁶ The Court acknowledges that the IOP Order found that “the duration of the stipulation should be considered in the
26 overall fairness analysis and that interim agreements of shorter duration—even ones that have not complied with
27 rulemaking procedures—may well be accepted and approved by the court.” (IOP Order at 79 (citing *American Forest
28 Resource Council v. Ashe*, 946 F. Supp. 2d 1 (D.D.C. 2013).) The IOP Order concluded that the Court was “not
troubled by the duration of the proposed stipulated injunction embodied by the IOP, which will be in place only
through September 30, 2022.” (*Id.*) The Court is neither surprised nor particularly troubled by the request to impose
the IOP for an additional year. This was fully anticipated by all parties at the time the 2022 IOP was approved. (*See
id.* at n. 56.)

adopted in the IOP Order as the standard of decision is that a stipulated injunction is just that—an injunction. “[T]he court’s approval is nothing more than an amalgam of delicate balancing, gross approximations and rough justice.” *Oregon*, 913 F.2d at 581 (internal quotations omitted). The Court has attempted here to slow the bleeding in the mode of an emergency medical technician. It is abundantly clear that the patient is not yet stable.

VI. ANALYSIS OF PCFFA’S INJUNCTIVE RELIEF PROPOSAL

As PCFFA correctly points out again (Doc. 442 at 10–11), the Court may adopt—if it deems doing so to be appropriate—elements of its proposed alternative relief in addition to the terms of the 2023 IOP under the more traditional injunctive relief standards. However, the Court has already explained above why it believes certain of the additional protections proposed by PCFFA are not appropriate. For the same reasons, the court declines to impose those provisions as independent forms of injunctive relief.

VII. BOND REQUIREMENT

Federal Rule of Civil Procedure 65(c) provides

Security. The court may issue a preliminary injunction or a temporary restraining order only if the movant gives security in an amount that the court considers proper to pay the costs and damages sustained by any party found to have been wrongfully enjoined or restrained. The United States, its officers, and its agencies are not required to give security.

Here, the only injunctive relief being imposed is at the request of the entities subject to the injunction, namely the federal and state agencies that operate the CVP and SWP, respectively.

Under these circumstances, no bond will be required

VIII. REQUEST FOR A STAY

The final question involves the request to further stay all proceedings in these actions through December 31, 2023. (Doc. 406 at 18.) This time is designed in part to allow Federal Defendants to conserve resources needed to complete the revisions to the BiOps on remand, which is targeted for early 2024. (*See id.* at 6.) The IOP Order found that a stay was appropriate under *Landis v. N. Am. Co.*, 299 U.S. 248, 254 (1936). That reasoning and conclusion remains valid, and no party seriously contests the stay request or the December 31, 2023 expiration.

PCFFA specifically requests that the Court's final order include a "limited exception allowing parties to seek injunctive relief if necessary to address unanticipated harms to the species or a failure to comply with the terms of the IOP." (Doc. 416-2 at 2.) The Court declines to include this additional language because it is unnecessary. Nothing precluded or precludes a party from seeking injunctive relief during the pendency of a stay. The request for a stay is GRANTED.

IX. CONCLUSION

For the reasons explained above:

(1) Federal Defendants' and State Plaintiffs' motion for an order extending the IOP as modified as interim injunctive relief through December 31, 2023, (Doc. 406), is GRANTED.⁶⁷

a. To ensure compliance with and appropriate opportunities for review of the Court's order imposing the IOP, Federal Defendants shall file on the docket of these cases a copy of the draft and final TMPs for 2023, along with a justification for any planned departures from the IOP's temperature targets.

(2) PCFFA's request for alternative/separate injunctive relief (Do. 416) is DENIED.

(3) Federal Defendants' motion to strike the requested amendment to the IOP included in the SRS Contractors' reply brief (Doc. 450) is GRANTED.

(4) Federal Defendants' and State Plaintiffs' request for a stay of these cases through December 31, 2023 is GRANTED.

The parties are directed to communicate with one another regularly throughout the remainder of WY 2023 and to file a joint status report with the court *at least* 45 days in advance of the expiration of the stay, earlier if the parties conclude it is necessary to do so, informing the Court of the need for further proceedings in these actions.

The parties are further informed that the Court is considering requiring the appointment of a special master to oversee review of any further requests for interim injunctive relief in this case, particularly if those requests continue to involve extensive factual disputes. The parties should

⁶⁷ Federal Defendants are directed to forthwith submit a word processing version of the proposed order adopting the IOP to the court for signature.

1 meet and confer in advance of the joint status report deadline and should include in the joint
2 status report their respective positions and plans (including funding plans) regarding such an
3 appointment.

4
5 IT IS SO ORDERED.

6 Dated: **February 24, 2023**


UNITED STATES DISTRICT JUDGE